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SHAW, P.

A

A
Philoſophical and Chymical
ANALYSIS
OF
ANTIMONY.

[Price One Shilling.]

A
Philoſophical and Chymical
ANALYSIS
OF
No. 4 –
ANTIMONY:

Giving a rational ACCOUNT of the
NATURE, PRINCIPLES, and PROPERTIES
of that celebrated DRUG,

Its various CHYMICAL PREPARATIONS,

And particularly,

One that is not only an Effectual CURE for the
preſent DISTEMPER among the CATTLE, but a
PRESERVATIVE from their being INFECTED.
With DIRECTIONS how to manage them while
under CURE.

AND

Several CRITICAL REMARKS on the Modern
AUTHORS who have treated of ANTIMONY.

By an Eminent PHYSICIAN. P Shaw

The SECOND EDITION.

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A Philoſophical and Chymical ANALYSIS OF ANTIMONY.

1. THE Antimony, of which we here intend to treat, and from which ſuch a Variety of Medicines is prepared, is that commonly called *crude Antimony*, tho' this be an Appellation more applicable to its Ore: 'Tis, however, by this Name known amongſt Apothecaries and Druggiſts. It is alſo called *Antimonium fuſum*, run Antimony, alſo *Stibium*, &c. not to mention other Appellations, not ſo commonly uſed. The different Sorts of, and the accidental Changes, befalling this Mineral, may be ſeen in *Hebenſtreit*'s learned Obſervations on the *Antimonium rubrum* *.

2. The Reaſon why this crude Antimony is thus fuſed, or run out of its Ore, is in order to its parting with, and leaving behind it, all the ſtony Impurities adhering to it in its native State. It is therefore ridiculous in philoſophical

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* Act. N. C. Vol. IV. P. 557. It. Diſſ. Chem. Rolf. de Antim.

cal Speculatiſts to prefer to fuſed Antimony its Ore, as if the former had loſt in the Fire ſomething of its *univerſal Spirit*, or *ſolar Sulphur*.

3. Common Antimony may in a crude Form, provided it be fine ground, with Safety be adminiſtred both to Man and Beaſt: Being mixed from half an Ounce to a whole Ounce amongſt their Food, it fattens Horſes and Swine; it infallibly cures the Mange in Dogs, in Swine the Meaſles, a Diſtemper with Certainty diſcoverable, upon viewing under the Tongue of theſe Animals.

4. Crude Antimony has been found to cure both arthritic Pains, and leprous Diſorders of the Skin in Men: Of this we have a ſurpriſing Inſtance in *Kunckel's Laboratorium* *.

5. *Nic. Mirepſus* has found his Compoſition of the Antidote from Ginger, mixed with three Drachms of crude Antimony, to be of Service in Epilepſies, Apoplexies, Madneſs and Quartans †.

6. As crude Antimony in Powder is an improper Form for adminiſtring it, *Kunckel* firſt deviſed the giving it in Lozenges; the Deſcription of which you have in the *Brandenbourgh* Diſpenſatory, under the Title, *Morſuli reſtaurantes Kunckelii*. It is to be obſerved, that one of theſe Lozenges weighing a Drachm, 5 Grains thereof are Antimony, and that accordingly the Doſe is to be regulated.

7. The aſcribing to Antimony a powerful Operation, both upwards and downwards, appears to be a groundleſs Speculation of *Syl-*

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* P. 432. † Sect. 1. de Antidot. § 470. P. 136.

vius *: Tho' his ſtanding up for, and greatly commending *Mercurius Vitæ*, ſeems to have a good Foundation †.

8. For my Part, I, in ſuch Caſes, prefer a well prepared *Regulus Medicinalis* to a crude Antimony, as being lighter far, and, on the Score of ſome ſaline Admixture, more active and ſoluble, and conſequently more communicable with our Juices, yet ſafe and ſerviceable. Such I have repeatedly found peculiarly efficacious in Corruptions of the *Lympha*, in Ulcers, and in Venereal Diſorders, after firſt premiſing, then interpoſing the proper Purgatives.

9. I here beg Leave to ſubjoin a Table of the ſpecific Gravities of ſeveral Mineral Bodies and Productions, as diſcovered by accurately weighing 1000 Grains of each in Water:

Fine Gold	944
Quick-ſilver	932
Lead	911
Fine Silver	906
Biſmuth	905
Factitious Cinnabar	903
Pure native Cinnabar	898
Zink	890
Copper	880
Iron	870
Fine Tin	866
Mercurius dulcis	855
Simple Regulus of Antimony	848
Cinnabaris cum luna fixata	835

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* Oper. I. P. 104.

† Ibid. II. P. 104.

Miſſpickel or the Arſenical Pyrites	832
Native Arſenic	817
Teſtaceous Cobald	
Common Glaſs of Antimony	809
Sulphur-pyrites from *Pretzſchendorff*	806
The beſt black Smalt-cobald	799
Red-goldiſh Ore	796
Dove-necked or Variegated Biſmuth-ore	788
Brown-ſtone, or Manganeſs	787
Pure Spath, or Spar	778
Goldiſh Pyrites of *Rudelſtadt*	770
White Smalt-cobald	759
Liver of Antimony prepared by Accenſion with equal Parts of Nitre	750
Crude Antimony	728
White Arſenic	
Common *Regulus Medicinalis*	715
Orpiment	706
Purified Orpiment	689
Pure Quartz, or Mountain-cryſtal	622
Tartarus vitriolatus	615
Oak-wood metalliſed	599
Oriental Diamond	555
Black-lead	538
Cat-ſilver	536
Common Sulphur	507
Stone-coal	212
Amber	96

10. The exhibiting the accurate ſpecific Gravity of Bodies may have ſundry Uſes both in Natural Philoſophy, Medicine, and Chemiſtry, eſpecially as it may be found with Diſpatch,

and at an eaſy Rate. For, *Firſt*, It ſupplies us with their characteriſtic Mark, diſcovers whether the Bodies be pure and unmixed, or containing any Thing foreign; and in this Manner may pure and alloyed Metals be diſtinguiſhed with Eaſe. *Secondly*, It ſhews in what Proportion a Body conſiſting of two Parts is mixed: For Inſtance, How much Sulphur and Regulus there is in Antimony; Sulphur and Mercury, in Cinnabar; Sulphur and Arſenic, in Orpiment? *Thirdly*, Often leads to other new Hints and Inquiries; as whether a *Kies* or Pyrites may be beſt worked for Sulphur or for Copper; whether a pure unſparry Cobald be lighter than the other Sorts, and hold more of the fixed, blue, glaſſy Earth; alſo, when a Mineral comes to have a remarkable Degree of Gravity, whether ſuch Mineral holds not ſome nobler Metal? As the Pyrites of *Rudulſtadt*, which is as heavy again as the *Pretſchendorff* Sort; eſpecially if the Body loſes not much in the Fire. Native Arſenic, weighing more than white Arſenic, ſuggeſts the former to be mixed up with more of a Semi-metallic, the latter, with more of a ſaline Subſtance. *Fourthly*, By Means of the ſpecific Gravity of ſome chymical Productions may their medicinal Effects be compared, in Regard the more ponderous antimonial Preparations are generally more draſtic and violent than the lighter Sort; as the Glaſs, Hepar, and Regulus of Antimony, being to each other as 809, 750, and 720, differ alſo in their Operations;

rations; the lighter working in the mildeſt, the heavier, in the ſtrongeſt Manner.

11. To know then the genuine Proportion of the two conſtituent Parts of a Body; as, for Inſtance, of the Sulphur and Regulus in Antimony; by Help of the preceding Table, a Calculus may be thus ſhortly made: *Firſt*, Subtract the three ſeveral ſpecific Gravities, each from 1000 (as of each Sort there were at firſt ſo many Grains taken) and you have for the Sulphur 493, for the Antimony 272, and for the Regulus 152: So much do 1000 Grains of each of theſe Bodies loſe in Water. *Secondly*, Subtract 152, the Loſs of the Regulus, from 493, the Loſs of the Sulphur, there remain 341. *Thirdly*, Subtract alſo 152, the Loſs of the Regulus, from 272, the Loſs of the Antimony, the Remainder is 120. *Fourthly*, This laſt Remainder multiply by 1000, the Number of Grains taken at firſt, the Product is 120,000. *Fifthly*, This Product divide by 341, the firſt Remainder, the Quotient is 351, for the Sulphur contained in 1000 Grains of crude Antimony: So that 1000 Grains of Antimony conſiſt of 351 Grains of Sulphur, and 649 of Regulus.

12. Hence it may be ſeen, that the Quantity of Regulus in Antimony is almoſt as much again as the Quantity of Sulphur; a Thing we could never learn by Chemiſtry, as ſuch conſtituent Parts always loſe ſomething in the Fire. Yet it cannot be denied, but that an Ingredient in the Maſs of a mixed Body may be ſome-

thing other than when it is weighed alone and apart.

13. If in the ſame Manner a Calculus be made for the ſpecific Gravities of Cinnabar, Sulphur, and Mercury, we ſhall find that 1000 Grains of Cinnabar conſiſt of 31 Grains of Sulphur, and 969 Grains of Mercury: So that the Quantity of Mercury in this Concrete is at leaſt 30 Times that of its Sulphur.

14. But to return to crude Antimony; we affirm, it may, tho' mixed with the corroſive Regulus, be innocently taken in its crude Form, in Regard the Regulus is wholly corrected by the common Sulphur lodged in with it: In Manner as Sulphur mixed in with Arſenic has the ſame Effect, rendering both the natural Orpiment, and the factitious yellow Arſenic, innocent Things.

15. No other Principles of Antimony have hitherto been ſhewn beſides a metallic Regulus, and a common Sulphur. True it is, the Opinions of Authors on this Head are various, and in Part ridiculous; and being but bare Opinions muſt certainly go for ſuch. I own myſelf a profeſſed Enemy to all abſtracted Speculations in the practical Sciences, as ſuch eaſily may, and commonly do, lead Men aſtray from the Truth and Simplicity of Nature, and may prove of the moſt fatal Conſequences, eſpecially in Phyſic.

16. *Joh. Freytag*, * ſuppoſes Antimony to conſiſt of Sulphur, Arſenic, and Mercury. *Dun-*

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* Ex Arſenico turbido & hydrargyro terreſtri. Auror, Med. p. 116.

can Bornettus * pretends, it is compoſed of Salt, Mercury, and a two-fold Sulphur. All which Notions, as having no Foundation in Nature, muſt go for the learned and unintelligible Chimera's of theſe Authors. *Mætſius* † alſo ſuppoſes, there are Salts in Antimony; and by this Means is led to aſſign falſe Cauſes of Production; *e. g.* the Salts, ſays he, looſen the acid Compages of the Regulus, and thereby it is precipitated out of the Antimony. The other empty Speculations, advanced by *Paracelſus*, *Faber*, *Kerkringius*, &c. on the Principles of Antimony, are ſcarce worth the Mentioning.

17. I can by no Means allow of any third genuine arſenical Principle to be in Antimony, all the pretended Proofs thereof falling hitherto ſhort of Conviction; eſpecially as no true arſenical Matter has been produced or ſhewn from it. Nay the Arſenic muſt needs, amidſt ſo many fugitive Productions, ſome Time or other manifeſt its ſpecific triangular Figure, or other Qualities; which yet no one has hitherto ſhewn. Nay, the pretended Arſenic therein may, as a fugitive Matter, in ſome Manner at leaſt be forced out of the Regulus, or taken up by Means of an *Addition*; but this has as little ſucceeded. Arſenic alſo is a ſaline Body, whence it imparts its Virtue to Water; which neither the Regulus, the Glaſs, nor any other duly edulcorated Production of Antimony ever

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* Tyroc. Chem. p. 259. † Prodr. Chem. rat. p. 29.

does. Arſenic alſo entirely diſſolves in Oil of Tartar, but never ſo any pure reguline Subſtance.

18. When I further conſider, how the pretended poiſonous Regulus may, without *Addition* of any arſenical Matter, be again produced from a ſafe and innocent antimonial Calx, ſuch as the diaphoretic Antimony is, I begin to ſuſpect the Reality of any Arſenic in Antimony; in Regard it ſeems to be a Thing inconceivable, how a pure, phlogiſtic, vegetable Earth ſhould again render arſenical the reguline Earth. It would alſo follow, that the Nitre ſhould in ſo very ſhort a Time completely render Medicinal the pretended Poiſon from the above-mentioned Calx; which yet it is never found to do for Arſenic itſelf.

19. I once alcaliſed Nitre in Flux on the Fire with the native Arſenic, or teſtaceous Cobald, ſucceſſively, till all Detonation ceaſed: Upon pounding the warm Maſs, and extracting a yellow Tincture with Spirit of Wine, the arſenical Nature ſtill remained: To ſhew, that the Nitre indeed diſſolves, but never corrects Arſenic, nay, not that little, taken up by the Spirit of Wine, in a diſſolved Form.

20. But ſhould any one call the corroſive Effect of draſtic Antimonials Arſenical; though this might be allowed of, yet it would be a very improper Way of Speaking; as, in the ſame Manner, *Cantharides*, fixed Nitre, Quicklime, and the *Lapis infernalis*, nay even Tobacco itſelf, may be alſo called Arſenical, which yet is not ſo very properly done, though the above-

mentioned Bodies ſuddenly corrode the firm Parts, and the laſt be internally no leſs capable to bring on the Symptoms, called by *Stahl* * the *Syncoptico-Cardialgica*. Whence to me it ſeems inconceivable, how Mr. *Pott* †, a Man otherwiſe of great Experience in Chemical Matters, ſhould deem the Flowers of Antimony to be a genuine Arſenic; for no Flowers of Antimony ever diſſolve in Oil of Tartar *per deliquium*, as Arſenic does; not to mention, at preſent, the other characteriſtic Marks thereof.

21. It is worth Obſerving, that the Regulus of Antimony is never found alone in the Earth, but ever mixed with Sulphur, namely in the Form of an Antimony; whereas the Parts of other ſulphureous Compounds are often met with aſunder; as, for Inſtance, virgin Mercury, out of the Cinnabar; native Arſenic out of the Orpiment; *red-goldiſh* Ore, and *Miſſpickel*, alſo Iron and Copper, out of the common *Kies* or Pyrites; Lead, out of Black-lead, &c.

22. The reguline Portion may in as various Ways be exhibited pure, and apart, as there are various Ways of procuring the pure Sulphur of Antimony; *e. g.* When the reguline Portion is, by Means of a corroſive Acid, kept back or withheld, the ſulphureous Portion comes then to be ſet looſe, and mount up apart, in a proper Pitch of Fire, in its extraordinary yellow Form: And this is Dr. *Willis*'s ‡ Method, by Means of *Aqua regia*; alſo *Hoffman*'s || by

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[*] Mat. Med. P. 120.

[†] Diſſ. de Auripigm. P. 20.

[‡] Pharmac. rat. P. 40.

[||] Obſ. Phyſ. Chem. P. 272.

Means of Oil of Vitriol; tho' he himſelf allows it to be a Production rather than a Separation of Sulphur; and it is alſo my own Method; *viz.* to diſtil Cinnabar of Antimony along with ſilver Vitriol or Cryſtals, by which Means there ſoon ariſes a yellow Sulphur.

23. Thus the pure Sulphur of Antimony differs in nothing from the common; and all the emetic Virtue of antimonial Sulphurs, as they are called, depends ſolely on the Admixture of ſome reguline Particles. And herein *Etmuller* * ſeems to have gone too far, *viz.* in not aſcribing to the Regulus alone the emetic-cathartic Virtue; the crude Regulus poſſeſſing much emetic Virtue, which, on the contrary, the pure antimonial Sulphur by no Means does; nay, the Cinnabar of Antimony muſt even be emetic. It is however certain, that what are called *antimonial Sulphurs*, are far from being a pure Sort, having always mixed in amongſt them ſomething of the Regulus: Whence theſe Sulphurs never have the right yellow Sulphur Hue, but ſhew of a dingy Red, an Orange, or a dark Yellow: And from all of them may a common yellow Sulphur and a pure Regulus be exhibited.

24. We have ſaid above, that Antimony naturally conſiſteth of Sulphur and Regulus: But we now add, that each of theſe again is a Compound, made up alſo of two other Principles; the Sulphur, of a vitriolic Acid and an inflammable Earth; the Regulus, of a like inflam-

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* Oper. I. P. 875.

mable Earth, and beſides of another peculiar fixed, vitreſcible, metallic Earth. But as to the mercurial Matter going off along with the *Phlogiſton*, upon calcining the Regulus, nothing demonſtrative can hitherto be determined.

25. The marking down the above-mentioned demonſtrable Principles is for this Reaſon highly neceſſary, *viz.* that when *per ſe*, or combined with other Things they are brought into Motion by the Fire, one may afterwards from the Productions and attending Circumſtances conclude, what Principles or Parts are gone over, or combined, or have acted upon, and with each other, and are fled off.

26. Some modern Authors call the inflammable Earth of the Regulus a *metallic Sulphur* *. Yet I cannot conceive, how a Principle can be called Metallic, which is ſo ſpeedily recoverable, by Means of a vegetable Coal: Much rather ſhould the glaſſy, earthy Portion of the Regulus be called a peculiar *metallic Earth.*

27. But we now proceed to the more noted antimonial Productions, intending not only in a brief Way to mention their Preparations, but, which is our principal View, ſhew the Grounds or Reaſons of the ſeveral Operations, or the *Ætiology* of the Production in each, as much as may be: Namely, what Changes befal theſe Principles; I mean, what Separations and Combinations ariſe, with the Principles of the Bodies treated and actuated by the Fire?

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* Boerh. El. Chem. II. P. 513.

28. All dry antimonial Productions may fitly be divided into, *Firſt*, Purely Sulphureous. *Secondly*, Reguline. *Thirdly*, Sulphureous-reguline. *Fourthly*, Reguline-calcarious. To the *firſt* Claſs belongs the pure yellow Sulphur of Antimony, which differs not from the common Sort. To the *Second*, both the Simple and the compound Regulus, the Glaſs of Antimony, the Flowers of the Regulus, nay, even the *Mercurius Vitæ*. To the *Third*, the Flowers of Antimony, both the Simple and Compound, *Gramman*'s dry Tincture of Antimony, the *Regulus Medicinalis*, the *Croci* and *Hepata* of Antimony, the *Sulphur impurum*, *Kermes minerale*, *Sulphur auratum*, *Panacea Glauberi*, *&c.* To the *Fourth*, the *Antimonium incineratum*, *Antimonium diaphoreticum bezoardicum*, *Minerale Anti-hecticum & Stomachicum Poterii*, *Ceruſſa Antimonii*, *Materia perlata*, or *Magiſterium Antimonii*. We, notwithſtanding, propoſe carefully to conſider all theſe in a different Order.

29. The *Hepar* or Liver of Antimony is prepared, when Pot-aſh or Salt or Tartar 8 Loths*, and crude Antimony 4 Loths, are mixed together to a Powder, melted in a Crucible, and poured out in a Quarter of an Hour after: When we procure a dark red Maſs, weighing 10 Loths, without any of the Regulus ſettling to the Bottom.

30. There are only 2 Loths of the whole Compoſition loſt in the Fire; and, as the Production is charged with Alcali, it quickly comes

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* A Loth is Half an Ounce Troy.

to draw the Moiſture out of the Air; which, on the contrary, the *Regulus Medicinalis* cannot, as having only a fifth Part of Alcali.

31. *Mynſichtus* * orders an equal Portion of Antimony and Alcali, but deceives himſelf, when he imagines this *Crocus* to be intirely deprived of its arſenical Sulphur, as being miſled by his falſe Notion about the corrective Power of the Salt of Wormwood.

32. I once melted 1 Loth of Antimony with 1 Drachm of Salt of Tartar in a Glaſs, when there precipitated to the Bottom a Regulus of the Size of a Pea, and, after removing the Matter, the Sides of the Glaſs were obſerved to be really gilded.

33. From Alcali and Sulphur there ariſes a *Hepar Sulphuris*, but from Alcali and Antimony, the Hepar of Antimony: And thus the Hepar of Antimony is nothing other but an Antimony combined in the Fire, with a ſufficient Quantity of Alcali. Hence it appears that the *Regulus Medicinalis* is alſo to be ranked amongſt the *Hepata* of Antimony.

34. The Ætiology of, or the Manner of accounting for, the Production of the above Hepar is this: The Alcali melted along with the Antimony firſt of all lays hold on all the Sulphur in the Antimony (in Regard its inflammable Part does not ſo readily free itſelf from its combined Acid, as in that Caſe this Acid would not in a conſtant Fire ſaturate ſo much Alcali) and there ariſes, *firſt*, a perfect *Hepar Sulphuris*;

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* Arm. Chem. P. 12.

which, according to its uſual Effect on Metals, diſſolves the accompanying metallic Regulus. Whence the Regulus cannot duly free itſelf from the Sulphur lodged with it, but remains moſtly mixed and diſſolved in the entire Maſs, which exhibits what we call the *Hepar Antimonii.*

35. There may alſo, with Antimony and Tartar, but in a ſtrong and conſtant Degree of Heat, a Hepar of Antimony be prepared; in Regard the Tartar, becoming itſelf at length alcaliſed in the Fire, does the Office of an Alcali: Yet on the Score of its much coaly Matter it retards the Flux a little, as conſuming and alcaliſing very ſlowly in the Crucible, and therefore a pure Alcali anſwers much better.

36. From Antimony, Nitre, and Tartar there alſo ariſes a like Hepar of Antimony, when the inflammable Subſtance of the Tartar and Sulphur alcaliſes the Nitre; which then, together with the Tartar, alſo ſufficiently alcaliſed, diſſolves the Body of the Antimony, and makes it into a Liver; with this only Difference, that in this Proceſs, the Nitre taking away the *Phlogiſton* out of the Regulus, and deſtroying a Part of the Sulphur, the coaly Tartar does again in Part reduce the Regulus, which thereupon falls down in the Cone out of the Hepar ſtanding in Flux. In this Manner the common *Regulus Antimonii ſimplex* ariſes, tho' prepared with a different Proportion of Species, Vid. §. 157. Its *Scoriæ*, however, are nothing but a genuine Liver of Antimony.

37. We may alſo by Means of the Salt of the *Caroline* Waters, inſtead of the common Alcali, prepare a martial Hepar of Antimony, which on the upper Surface, after Pouring out, ſhews quite red; but in the under, on Breaking it, of a mineral Splendor. From 1 Loth of Antimony, and 2 of ſuch Salt, we procure 2 Loths and Half of the like Hepar.

38. A quite different Species of Liver of Antimony is extemporaneouſly prepared by Accenſion from equal Parts of Antimony and Nitre; ſixteen Loths of the whole Compoſition giving, underneath, 11 Drachms of a fluxed, glaſſy Matter, and, a Top, twenty Drachms of a fluxed ſooty-ſaline *Scoriæ*.

39. The excellent *Neuman* * hath fully and ſolidly demonſtrated the *Phlogiſton* in the nitrous Acid: And it deſerves to be conſidered, whether the inflammable Matter in Nitre may not be concluded from the following Experiment? Namely, from an amber-coloured Maſs, run together from white Arſenic and Vitriol of Silver, turning of itſelf in a ſhort Time black all over. Yet I ſhould in that Caſe, in Oppoſition almoſt to the Opinion of many experienced Authors, aver an inflammable Matter to be even in white Arſenic: Let any one cryſtallize a Maſs run together in 2 Parts of white Arſenic with 1 of Nitre; theſe Cryſtals precipitate out of a weak Solution of Silver a brown-red Calx. Whence comes the Colour here? And in what Manner does this Nitre throw down the Sil-

* Lect. publ. de nitro, P. 66.

ver? Seeing it does not precipitate a Solution of Gold.

40. But to return to the Hepar prepared by Accenſion: Upon Rubbing and Edulcoration, the reſiduous Powder proves to be the ſame with the *Crocus Rulandi*, prepared by a ſucceſſive Detonation: But by no Means before Edulcoration, as ſome Authors ſeem to affirm, and give both Productions without Diſtinction the Name of the *Crocus Rulandi.*

41. That this glaſſy Concrete, tho' remaining unrelented in the Air, is a genuine Liver, appears both from its Lotion colouring Silver, and from its letting fall of itſelf an impure, and on the Affuſion of an Acid, a golden Sulphur. From a common Hepar it differs in this, that holding leſs Alcali, it gives or relents not in the Air; but from a *Regulus Medicinalis*, in having a greater Share of Alcali in its Compoſition; whence alſo it cauſes Vomitings: So that this Liver holds the middle Place between a common Liver of Antimony and the *Regulus Medicinalis.*

42. *Rulandus*, *Beguinus*, and many others muſt needs not have duly underſtood the Ground-Parts or Principles of this Maſs, when they indiſcriminately apply the Name of a *Crocus* to it: And the illuſtrious *Stahl* * cannot ſuppoſe the *Crocus Rulandi* to be of the ſame Origin with the *Regulus Medicinalis*, without compriſing under it, at the ſame Time, this Species of Hepar: Since the *Crocus* prepared by ſucceſſive

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* Menſ. Jul. P. 52.

Detonation, both before and after Edulcoration, greatly differs from the *Regulus Medicinalis.* Many Authors are of the Opinion, it were all one to prepare this *Crocus* by an extemporaneous Accenſion, or a ſucceſſive Detonation: But this only holds after Edulcoration, ſeeing ſuch Cramata or Maſſes do, before Edulcoration, prove very different. For in this laſt Operation, the *Crocus* has ſtill much middle Salt mixed in with it, which in, the firſt Operation, it has not; in Regard that it, together with other Parts, generally remains behind in the *Scoriæ* floating a Top.

43. Thus this hepatic Concrete has, notwithſtanding the many ſaline *Scoriæ* it has already parted with, ſtill ſomething ſaline in its Mixtion, by Virtue of the hepatic Nature: But, when duly ſeparated therefrom by Edulcoration, the common *Crocus Rulandi* is procured.

44. The above Hepar, when rubbed, ſhews of a pale Yellow, and even retains this Colour when edulcorated with cold, but with boiling hot Water directly acquires a dark Cinnamon Colour, like the ordinary *Crocus Rulandi* prepared by a ſucceſſive Detonation and edulcorated hot. The Reaſon is, that the cold Water is too weak, duly to ſet looſe the hepatic Salts cloſe wedged therein; boiling Water being much more efficacious, and fit to diſſolve them. By this Means, the brown-yellow impure Sulphur, lodged along therewith, is ſet free, as then its lighter Part, which ſoon falls down out of its filtred Lixivium: But this Sulphur, being

parted, now mixes with the remaining calcined reguline Parts, giving the whole earthy Reſiduum a dark Cinnamon Colour. In the ſame Manner almoſt does Turbeth Mineral, or the white mercurial Calx, precipitated out of *Aqua Fortis* with the vitriol Acid, turn yellow by Edulcoration with hot Water.

45. The Foundation of the Production of this Hepar is nearly the ſame with the ordinary *Crocus Rulandi*; only, that here, upon the Accenſion, all the Principles of the two Species are both brought into a ſudden, and a much more violent igneous Motion; whence both the under reguline ſulphureous Part, and the ſaline *Scoriæ* a Top, come into actual Flux, the heavier Parts ſooner ſeparating from the lighter, alſo their Seceſſions and Combinations more eaſily happening at the ſame Time. Much antimonial, ſulphureous, and reguline, and ſome ſaline Parts flying off in the Form of Fume and Flowers, ſettle in Part on the Sides of the Mortar. The Nitre is at the ſame Time, in the Act of Accenſion, deprived of the Acid united along with the *Phlogiſton*, conſequently alcaliſed; moſt of which forms, together with the Acid of the Sulphur, a middle Salt, and moſt of the light, ſooty *Scoriæ* (as there then fell ſpontaneouſly, in a few Weeks after, large Cryſtals fall down out of their filtred Lixivium) the remaining Alcali, forms, with ſome entire Sulphur, a Hepar, diſſolves and unites itſelf with the reguline, glaſſy Part; and this Hepar being ſet free from the entire run Maſs, and as

the more ponderous Part, ſinks down to the Bottom.

46. Thus the Hepar, prepared by Accenſion, conſiſts of antimonial and alcaline, namely, much reguline, little ſulphureous, and ſome ſaline Parts. But when the hepatic ſaline Parts, are by Alixation ſeparated therefrom, ceaſing to be a Hepar, it now commences a genuine *Crocus*.

47. The like Hepar may be prepared with equal Parts of the ſimple Regulus and *Tartarus Vitriolatus*, after mixing together and ſtrongly igniting them for an Hour in a cloſe Crucible. A Loth of this mixed Powder gives 2 Drachms and 2 Scruples and a Half of a Hepar hard as Stone; which upon Rubbing ſhews yellowiſh like the above Hepar; but edulcorated, of a dark Yellow, like the common *Crocus Rulandi*. The Lotion of this Hepar tinges Silver, for a long Time retains its impure Sulphur, and parts not with it ſo ſoon as other Lotions of the Hepar: It may, therefore, ſerve as a liquid Emetic or a Mundifier ready prepared; but upon the Affuſion of an Acid it ever lets fall a golden Sulphur.

48. The Ground of this hepatic Production is eaſily ſeen: From the vitriolic Acid of the middle Salt, and the inflammable Part of the Regulus, there ariſes, amidſt the igneous Motion, by *Synerifis* or Combination, a Sulphur, and therefore, by Means of the alcaline Salt, a Hepar; this unites with the Regulus thus calcined, and forms this hepatic Maſs. Hence it

appears, this Hepar is the ſame with, or even exceeds *Munken*'s *Rammoneur*.

49. Upon mixing a Loth of the above Hepar (§. 38.) prepared by Accenſion, with two Loths of Cryſtals of Tartar, and boiling with 8 Ounces of Water, and filtring, and after all the precipitating Cryſtals and Saltneſs are parted, concentrating to an Ounce, there remains behind a yellowiſh Liquor, which is a ſoluble liquid Emetic, 12 Drops of which work a grown Perſon between 4 and 5 Times.

50. This Liquor is, as it were, a ſoluble Tartar Emetic, which ariſes from the Combination of the Cryſtals of Tartar, and the Alcali impregnated with ſulphureous, reguline Parts. Whence it not only yields no more Cryſtals, but is alſo ſtronger in working, than the cryſtalliſed Tartar Emetic.

51. I infuſed a Drachm of this Hepar (§. 38.) tenderly rubbed with 8 Loths of boiling River Water, ſtirred it about, and filtred it in 48 Hours after, through a double Strainer (as there was before ſome impure Sulphur fallen down) a Loth of this clear Liquor, within the Hour, ſtrongly vomitted a young Woman fourteen Years old. And thus there muſt be peculiar Circumſtances attending, when *Lemery** aſſures us he adminiſtred large Quantities of the Lotion of the Hepar of Antimony without any bad Conſequences following.

52. From a Hepar, prepared of equal Parts of Salt of Tartar and Antimony, there may,

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* Anat, Antim. P. 502,

by Means of diſtilled Vinegar, a white emetic-cathartic Salt be made, which is no longer alcaline, though relenting in the Air. It diſſolves eaſily in Water, Wine, and Brandy; its Uſe and Doſe I leave to further Experience.

53. It is to be obſerved, that the Hepar precipitating under Accenſion is fitter for the emetic Wine; but that *Crocus* prepared by ſucceſſive Detonation, and well edulcorated, for the Tartar Emetic.

54. When the common Hepar of Antimono (§. 29.) is beat ſmall, and well edulcorated, the Powder remaining behind is called *Crocus Metallorum.*

55. The *Crocus* prepared with equal Parts of Nitre is much gentler than that with Alcali; though the former holds much fewer ſulphureous Parts.

56. Theſe *Croci* are only edulcorated Livers of Antimony, and an Antimony divided, corroded, and calcined by the Alcali or Nitre.

57. But the *Crocus* prepared with Alcali conſiſts of ſulphureous and reguline Parts; hence it ſtill cauſes a Detonation in the Fire with Nitre; and being afterwards well edulcorated over again and ignited, it may, with Salt of Tartar and Coal-duſt, be reduced back to a Regulus.

58. The *Crocus Metallorum*, or which is ſtill better the Liver of Antimony (§. 38.) is an invaluable Secret in the Murrain or Mortality of Cattle, being both a preſervative and a curative Means: As a Preſervative, it is given to an Ox in the Quantity of 5 Drachms; a Cow, 3

Drachms; a Calf or Sheep one Drachm, amongſt their Food; every 10 Days a Doſe, repeated 8 Times ſucceſſively: As a curative Means, the Doſe is exhibited every 14 Days, alſo repeated 8 Times: It far exceeds all the other common Medicines for Cattle, prepared from Antimony, Sulphur, Salt-petre, Roots and Herbs.

59. When the *Crocus Metallorum* well edulcorated is boiled with a like Weight of Tartar, then filtred and cryſtalliſed, you procure a Tartar Emetic.

60. But if inſtead of this common *Crocus* you take the above edulcorated Hepar (§. 38.) or the edulcorated *Crocus Rulandi* (§. 118.) and boil it with twice its Weight of Cream of Tartar ſoftly for an Hour, you, after Filtration and a due Evaporation, procure a ſtill better dry cryſtalline Tartar Emetic, which taken from 6 to 10 Grains operates with Eaſe, and to your Wiſh.

61. All Acids, but eſpecially the Vegetable, extract from the reguline Parts of Antimony an emetic Virtue: Whether you employ the Regulus itſelf in Subſtance, or its coloured Calces, as calcined Antimony, its Glaſs, the *Crocus Rulandi*, *&c.* and uſe for a Menſtruum Cream of Tartar, the acid Juice of Fruits, Vinegar, or Wine, the Extract proves always emetic. Thus it is, that Wine comes to extract the emetic Virtue, not as a ſpirituous Liquor as *Koenig* * imagines, but as it holds ſome Acid; whence a Spirit holding no Acid is incapable of extracting

* Regn. Min. P. 63.

from antimonial Preparations any emetic Virtue: But the Reaſon, why we commonly employ Tartar for the Extraction, is in Order to procure a concentrated, and commodious dry, ſaline Emetic.

62. That the Cryſtals of Tartar, boiled with the *Crocus Rulandi* well edulcorated, come to be ſomewhat altered in their Mixtion by ſo inſipid an antimonial Powder, appears, among other Things, from its very nauſeous Taſte, and its now ſpungy and ſoft Conſiſtence, as bearing now to be rubbed with much more Eaſe, than the foregoing Cryſtals of Tartar.

63. In the Preparation of the Tartar Emetic, Authors, in my Opinion, give not ſufficient Directions either about the Difference, the Choice, or the neceſſary and careful Edulcoration of the *Croci*. Dr. *Koenig*, for Inſtance, calls the Hepar prepared by Accenſion barely *Crocus*, teaching according to *Ludovicus* to make from it the Tartar Emetic with purified Tartar, without mentioning, in the leaſt, the Neceſſity of Edulcoration *. *Wedelius* † alſo ſuppoſes, one need only ſeparate the *Scoriæ* from the *Crocus*, prepared by ſucceſſive Detonation, to fit it for the Preparation of Emetics; whereas this Hepar throws off no *Scoriæ*, the fixed Part of the Nitre remaining mixed throughout the Maſs, ſurely therefore, Edulcoration muſt by all Means precede the ſerviceable Uſe of the *Crocus*. *Mynſichtus* ‡ orders the Adding to it the

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* Regn. Min. P. 63. † Comp. Chem. P. 143. ‡ Arm. Chem. P. 13.

Crocus Metallorum Abſinthiacus, tho' it had been more prudent to have recommended the Edulcoration of the *Crocus*, than regarded the imaginary Virtue of the Salt of Wormwood. For the Tartar, in Reſpect of Doſe, proves to be a different Thing with the common *Crocus Metallorum*; a different, with the *Crocus Rulandi*; a different, with the Hepar prepared by Accenſion; a different, when ſuch Calces are only ſuperficially, and laſtly, a different Thing ſtill, when previouſly well edulcorated: For ſhould, *e. g.* ſomewhat of an hepatic or a middle-ſaline Nature remain behind, there would two Inconveniencies ariſe: *Firſt*, The Tartar would, on Account of the Addition, prove not only unequal in Operation, but different at different Times. *Secondly*, Would become changed in its acid, and conſequently, its extracting Virtue: Both which Circumſtances muſt afterwards produce an unequal Tartar Emetic.

64. Upon ſuffering the Water, paſſing thro' the Strainer in the Edulcoration of all the above Livers of Antimony, to ſtand for ſome Time, there falls down to the Bottom a duſky Powder, which being parted by Filtration, and dried, is called, *Sulphur impurum Antimonii*.

65. The like impure Sulphur of the ſecond Seceſſion Dr. *Freytag* * holds to be a *Crocus Rulandi*, which, to the Quantity of 10 Grains infuſed with 2 Loths of Wine, makes his *Aqua benedicta*; it is at leaſt a good emetic Wine, tho' not the *Aqua benedicta Rulandi*; for the

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* Auror. Med. P. 619.

Acids do alſo certainly extract an emetic Virtue, from the golden Sulphur: And I have myſelf prepared, by Means of the *Panacea Glauberi*, a good Tartar Emetic. Certain it is, that the above two Loths of infuſed Wine will work more ſtrongly, than the 10 Grains of the impure Sulphur taken in Subſtance.

66. As all the filtred Lotions of the Livers of Antimony let fall an impure Sulphur; ſo the filtred Lixivium of the *Scoriæ* of the ſimple *Regulus*, or *Crocus Rulandi*, does the ſame.

67. In like Manner, what is called the *impure Sulphur*, is nothing but a genuine tender *Crocus Metallorum*, paſſing thro' the Strainer in a diſſolved Form. In other Reſpects it has the like Principles with the *Crocus Metallorum*, in Regard it alſo conſiſts of ſulphureous and reguline Parts; for, after Detonation with Nitre, and Edulcoration, it bears the being reduced back to a *Regulus*, by Means of Tartar, and a pure Alcali.

68. This ſubtile and tender Sulphur deſerves the Name of *pure*, rather than *impure*, and to be more accurately examined: In Regard it ſeems to merit a peculiar Conſideration from the following Reaſons. For, *Firſt*, It is ſubtile, tender, and light, as having paſſed the Strainer, and left behind it the coarſe reguline Portion. *Secondly*, Being ſomewhat corrected by the Sulphur ſtill mixed with it, it is conſequently not ſo draſtic, as moſt reguline Productions are; *e.g.* the *Crocus Rulandi*, *Mercurious Vitæ*, Glaſs of Antimony, *&c.* *Thirdly*, From its being untainted with any ve-

getable Acid, as falling down of itſelf, out of the Lixivium, and hence is not ſo highly regarded as a *Sulphur auratum.* For it is notorious, that the vegetable Acids always heighten the draſtic Virtue of antimonial Emetics. And thus I imagine this impure Sulphur to be ſet light by, on the Score of its Name.

69. To this Head alſo belongs a milder Sort of impure Sulphur, called from its Colour *Kermes Mineral*, or *Pulvis Carthuſianorum*, in *France*, and thus prepared: Commit ſome powdered Antimony along with Oil of fixed Nitre for 24 Hours to a briſk Digeſtion, at laſt bring the Matter to boil a little, and paſs it hot through a Strainer, and there will in a few Hours after, ſpontaneouſly fall down a Sort of red Sulphur, which muſt be well edulcorated; and it greatly reſembles the red *Terra Vitrioli dulcis.*

70. The younger *Lemery* * deſcribes this Powder at large, and enumerates ſome conſiderable Cures performed therewith, eſpecially in Diſorders of the Breaſt, wherein it has manifeſted a peculiar reſolving and expectorating Virtue. *Hoffman* alſo mentions its Preparation, yet with Circumſtances ſomewhat different, in Regard he orders the extracting Oil of Nitre to be previouſly diluted with much Water †; Yet, at Bottom, it comes all to the ſame. The firſt Cure, which raiſed the Reputation of this Sulphur at *Paris*, was performed on a *Car-*

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* Hiſt. de l'Acad. 1720. P. 542. † Obſerv. Phyſ. Chem. P. 290.

thuſian Monk, juſt in the Agonies of Death, whom 12 ſucceſſive Doſes, each to the Quantity of 3 Grains every 4 Hours, had perfectly recovered. But ſoon after it came to loſe its Credit, either from the too high Opinion conceived of its Virtue, or its not agreeing with ſome delicate Conſtitutions.

71. To procure a little more ſubtile Sulphur, let the Antimony together with the Oil of Nitre be held only for an Hour in ſtrong Digeſtion, when the Menſtruum then comes to be tinged red, which is then to be poured off ſoftly, otherwiſe, the red Sulphur ſuddenly falls down on the crude Antimony below, from which it cannot afterwards be parted. I have found that only a concentrated Lixivium, ſuch as Oil of Nitre or Tartar is, ſoon extracts a red Tincture. Or the common *Kermes Mineral*, once more waſhed, and the lighter Parts ſeparated from the heavier, will doubtleſs prove milder in its Operation

72. But this Powder is properly no Species of golden Sulphur, as *Lemery* * and *Hecquat* † would have it : For the golden Sulphur ariſes only by Precipitation with an Acid, but the *Kermes* is a Sort of impure Sulphur ; namely, an Antimony corroded, disjoined, and exalted in Colour, and falling down ſpontaneouſly out of the Lixivium. M. *Hecquat* ‡ rejects this *Kermes* upon ſlight Grounds, nay, upon the Foot of pure Speculation, and a falſe Suppoſition,

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* L. C. † Trait. de la dig. T. 1. Lett. IV. P. 524, 531. ‡ L. C. P. 521.

tion, borrowed from *Juncken*; namely, that in Antimony there is an attempered and concealed Acid, which in the Preparation of the *Kermes* is deſtroyed by the Alcali. And he alſo holds the *Kermes* to be a volatile ſulphureous Matter, and that the hundredth Part of a Grain gilds Silver: Neither of which is true; for neither is the *Kermes* volatile, at leaſt not more ſo, than the golden Sulphur; nor can the *Kermes*, as an edulcorated Powder, colour Silver; an Effect procurable only from the Lotion of the Hepar, and not from the *Kermes* itſelf. Yet our *Kermes* differs from the common *Sulphur impurum* in the following Reſpects: *Firſt*, That it is procured out of the antimonial Body, in Manner as the *Sulphur impurum*, by Means of an Alcali in the humid, conſequently the milder, and not the dry Way, by a Smelting-fire. *Secondly*, That it ſhews of a redder, but the *Sulphur impurum* of a browner Colour. *Thirdly*, That it holds fewer reguline Parts. Whence alſo, *Fourthly*, it is much milder in Operation, as it ſeldomer cauſes a Vomiting or Nauſea. The Reaſon of its milder Operation than that of the common golden Sulphur is, according to the elder and younger *Lemery*, owing to the alcaline Parts ſtill remaining behind therein; of which, on the contrary, the golden Sulphur is entirely deprived by Means of the Acid precipitant: But this Reaſon ſeems inſufficient: *Firſt*, As a Hepar of Antimony, ſo long as it is ſtill mixed with its Alcali, is more violent than after Edulcoration. *Secondly*, As both the *Kermes* itſelf, ſtill in a liquid Form, conſequently combined with much Alcali, and the dry Sulphur itſelf, not duly freed by Edulcoration from the Alcali adhering to it, is much more Emetic, than when by Edulcoration it is quite ſtripped of the Alcali. Not to mention that this *Kermes*, when, by Means of the nitrous Acid, it is diveſted of all the alcaline Parts intimately lodged therein, comes to be ſtill more corrected. And thus I hold, the Mildneſs of this red Sulphur to be rather owing to the correcting Sulphur, predominating therein, conſequently to the ſmaller Quantity of reguline Parts: Seeing the liquid Alcali does, in this humid and gentle Way, imbibe more ſulphureous than reguline Parts; whereas in the dry and violent Way, much of the antimonial Sulphur is deſtroyed by the Alcali, conſequently the reguline Parts predominate more in the Hepar procured. In like Manner the Deſtruction of the Sulphur may, among other Things, be gathered from the middle Salt, preſent in the Lixivium of the *Crocus Rulandi*.

73. The Foundation of the Production of this Sulphur is as follows: The liquid Alcali, in the Courſe of the Digeſtion and Decoction with the Antimony, after its uſual Manner, faſtens on, and diſſolves the Sulphur of the Antimony, and by Means of the ſoluble Hepar, procured at the ſame Time, diſſolves alſo ſome reguline Parts: But in Regard the ſulphureous Matter never firmly faſtens on the

alcaline Parts (for which Reaſon alſo the Extraction, whilſt ſtill hot, muſt be directly poured off from the Antimony) it ſoon falls down, and that ſpontaneouſly, along with the few reguline Parts united therewith, out of the Liquor to the Bottom: And thus the Oil of fixed Nitre acts here only as an alcaline Liquor, and the Extraction is alſo performable with any other, pure, ſharp, liquid Alcali. *Lemery* imagines the ſecondary Extraction of this Sulphur with Spirits of Wine from the Lixivium impregnated therewith (as the publiſhed Proceſs preſcribes) to be unneceſſary, as the Parts remaining behind in the Alcali were not more impure, than what the Spirits of Wine had took up. But he has miſtaken *Glauber* in the Place cited, and this Hint of our Author is only a bare Speculation. For the Spirits of Wine do certainly take into themſelves ſome of the Sulphur diſſolved in the Oil of Nitre, and become tinged thereby. Nay, I have Reaſon to believe, that *Glauber* preſcribes the precipitating and parting this *Kermes* rather than an impure Earth with the ſolvent Wine. For the Reſult will be a red ſoluble Salt, and not a dry inſipid Powder like the *Kermes* *. And therefore I take *Ligeri* or ſome other Perſon, and not *Glauber*, to be the Author of this *Kermes*, though the pretended Alcaheſt of the latter might give the Hint for it. But poſſibly *Glauber*'s Words are to be taken properly, when he doſes with pure Wine the Oil of Nitre impregnated with Sulphur of Antimony, and thereby according to his Opinion, ſeparates the *Fæces*, which may be a *Sulphur auratum* thrown down by the Acid of the Wine, and by Evaporation concentrates to a Salt the remaining liquid Hepar mixed with Wine. Hence he alſo requires a due Weight of the ſolvent Wine, for too much of it would precipitate all the Sulphur out of the Lixivium, and Wine and pure Alcali muſt make but a ſorry Medicine. But whether the ſoluble red Salt, ſo highly cried up by him, have any peculiar Virtues, is what Experience confirms not. Yet, on the contrary, it is very poſſible for a rectified Spirit of Wine by Means of Digeſtion to precipitate a Sulphur out of a Lixivium, impregnated with Sulphur of Antimony, but not to imbibe or diſſolve it. A like Sulphur I have myſelf in a few Hours precipitated by Digeſtion with a rectified Spirit of Wine out of a Lixivium of the *Crocus Rulandi*, that had ſtood long, and for many Months not ſeparated any *Sulphur impurum*.

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* Mirac. Mund. Edit. 8. P. 21.

74. The *Sulphur Antimonii fixum* communicated by *Stabelius** is fundamentally nothing other than the above *Kermes Mineral*; for there is no eſſential Difference on the Score of the Alcali ſharpened with Lime, and taking, inſtead of Antimony, the *Regulus Medicinalis*. It is true, a ſharp Alcali is requiſite to open the *Regulus Medicinalis*; but that thus it ſhould have greater Virtues than the crude Antimony,

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* Chem. Dogmat. P. 315.

can only be an empty Speculation: For, that the *Regulus Medicinalis* ſhould more difficultly bear Solution by a liquid Alcali, is a Circumſtance that can give no Preference to the ſulphureous Production. Yet a ſharpened Alcali may contribute ſomething to the Fixity of the Production. As the illuſtrious *Hoffman* * was aware of this, when he teaches to precipitate with Lime-water a like *Sulphur fixum Antimonii* out of the alcaline Extract of the *Regulus Medicinalis*, and aſſures us, that the Production does thereby become more fixed and corrected, than when precipitated with an Acid.

75. We now return to our Lotion of the Hepar. Upon precipitating the remaining Lixivium, out of which the impure Sulphur is fallen down, with an Acid, whether it be Vinegar or the Spirit of Vitriol, there falls down a yellowiſh Powder, which, being edulcorated, is called *Sulphur auratum*, or golden Sulphur.

76. For this Precipitation I with *Etmuller* prefer the Spirit of Vitriol to the Vinegar; in Regard the latter imparts a very nauſeous Smell to the Sulphur; which the other not only does not, but is rather apt to tame the reguline Parts.

77. It is no genuine Precipitation, when, upon pouring a Spirit of Sal Ammoniac, you procure a golden Sulphur from the Lixivium of the Hepar; it only promoting the Seceſſion of the Sulphur, otherwiſe falling of itſelf:

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* Obſ. Phyſ. Chem. P. 292.

Whence, when the Lixivium has in a competent Time let fall the impure Sulphur, an urinous Spirit precipitates nothing, but an Acid on the contrary. A Sort of golden Sulphur, much milder and more fixed than the common, may by Means of a ſtrong Lime-water be precipitated out of the Lotion of the Hepar of Antimony *.

78. The golden Sulphur is not a pure Sort, but mixed up with reguline Parts; whence it ſtill proves ſomewhat Emetic: But that, beſides the Reguline, it ſtill holds ſulphureous Parts, appears from its burning and violent Detonation with Nitre.

79. The otherwiſe experienced *Angelus Sala* † did not fundamentally underſtand the *Sulphur auratum*, when he neither will have it to be a Sulphur, nor own any reguline Parts to be therein. But its emetic Virtue, and Burning blue in the Fire, ſufficiently ſhew the Preſence of both. Nay, treated with Mercury ſublimate, it yields both a Butter and a Cinnabar.

80. The ſecond, third, and fourth Precipitation with the Acids is milder than the firſt; nay, the laſt vomits not at all.

81. It is eaſy to comprehend, why the Sulphur, falling down at laſt, is milder than the firſt; namely, as the former is lighter, conſequently holds fewer of the heavy reguline Parts, which muſt naturally fall down firſt.

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* Hoffm. Obſ. Med. Phyſ. P. 292.

† Anat. Antim. P. II. C. 1.

82. The Precipitation may alſo be performed with a Solution of the *Arcanum duplicatum*, or with an *Epſom* Salt; when the quick Seceſſion of the vitriolic Acid from the accompanying alcaline Salt may be obſerved.

83. From this Ground, a like vitriolic middle Salt precipitates alſo a beautiful Turboth Mineral, out of a Solution of Mercury, made in *Aqua Fortis* *.

84. From theſe Sulphur-precipitations we may ſee by the Bye, how weak a Hold the Alcali takes of the Sulphur; in Regard it lets go the Sulphur and the reguline Parts united therewith, partly ſpontaneouſly, as is obſervable in the *Sulphur impurum*, and partly, when come in Contact with the ſmalleſt Acid.

85. Dr. *Gohl* † peculiarly commends the *Sulphur auratum* falling in the third or fourth Precipitation in catarrhous Diſorders, and Wheezing of Children, given by Times in the Quantity of a few Grains.

86. Dr. *Stiffer* ‡, from his Experience of the peculiar Virtues of all ſuch Sulphurs and emetic Antimonials in chronical Diſtempers, commends them as Reſolvents, Correctors, and Aperients, repeatedly exhibited from a Half to a whole Grain.

87. Here I cannot omit obſerving, how the above Precipitations, directed by Authors, appear to me not certain and accurate enough; in Regard each ſeveral Precipitation may be

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* Vid. Pott. in Miſc. Barol. T. V. P. 91. † Act. Med. Berol. Dec. II. Vol. iii. P. 24. ‡ Lab. Ch. Spec. III. C. 6.

different in itſelf; according as at one Time more or leſs of the Lixivium is employed; at another, more or leſs of an Acid in the firſt Precipitation; and again, as the Lixivium has before-hand ſtood for a ſhorter or a longer Time: For, in Time, all the Sulphur comes to fall down of itſelf out of moſt of the Solutions of the Hepar, ſo that an Acid ſhall no longer precipitate the leaſt Sulphur out of it. And thus if you would have a golden Sulphur, whoſe certain Doſe and Effects you would obſerve, the following Circumſtances muſt be well heeded: *Firſt*, The Weight of the Antimony and the Salts, in preparing the Hepar. *Secondly*, The Quantity of pure Water, warm or hot, poured on it with the Intention of Edulcoration. *Thirdly*, The Time, both as to Length, and Seaſon of the Year, of letting the Lixivium previouſly ſtand for the Seceſſion of the impure Sulphur. *Fourthly*, The Acid Precipitant employed, and its Strength. *Fifthly*, The Quantity of it poured, for the firſt, ſecond, and third Precipitation. It is then, I ſay, we may procure a certain *Sulphur auratum*, affording us ſure Obſervations.

88. Some are of the Opinion, they procure a ſtill nobler *Sulphur antepilepticum*, if at the laſt they precipitate, with an urinous Spirit, the Lixivium now impregnated with the Acid Precipitant. But this muſt be left to a rational and competent Experience.

89. Upon precipitating the firſt Lixivium of the Liver of Antimony, or of the *Scoriæ* of

the ſimple Regulus, with diſſolved Cream of Tartar, the brown precipitated Powder is, after Edulcoration, called *Glauber's Panacea*, which operates ſomewhat milder than the Sulphur, thrown down with Vinegar or the Spirit of Vitriol; though no great Regard is to be paid the Title, as *Glauber* was very liberal of magnificent Titles for all his Diſcoveries. But if with Vinegar you have precipitated the coarſe golden Sulphur out of a Lixivium of the Hepar of Antimony, and you add to the reſiduous Liquor, after Filtration, a Solution of the Cryſtals of Tartar, you have the above *Panacea* almoſt of an entire white Colour.

90. Upon mixing together a Lixivium of the Liver of Antimony (prepared with the Salt of the *Caroline* Waters, inſtead of an Alcali, and out of the Lie of which there fell down, in 24 Hours Time, ſome impure Sulphur) with an urinous Salt, there immediately enſued, yet without any ill Smell, a ſtrong Precipitation. The Sulphur, after Edulcoration, drying and rubbing, was of a dark Red.

91. Upon ſuffering the Lixivium of the Hepar of Antimony to ſtand for many Weeks, it lets fall almoſt all the impure Sulphur, and then ſcarce becomes altered by an urinous Alcali, but readily by Vinegar, as what ſpeedily throws down its remaining Sulphur. Hence we may conclude the urinous Alcali properly to cauſe no genuine Precipitation; but, as the Sulphur has not a firm, but rather a very ſlight Connexion with the Alcali, it is by the leaſt

Degree of Alteration forced off, and diſlodged from the Embraces of the Salt; hence even a concealed and blunted Acid is capable of affecting a Precipitation, as is ſeen in Sal Ammoniac, the *Engliſh* Salt, and the *Arcanum duplicatum*; their Solutions being fitted to throw down a freſh-made Lixivium of the Hepar of Antimony.

92. Thus the *Crocus Metallorum*, the *Sulphur impurum*, and the *Sulphur auratum*, both in their Mixtion and Effects, differ only in Degree: For, in all the three, there are reguline and ſulphureous Parts, combined and ranged, but in unequal Proportion. For Inſtance, the *Crocus Metallorum* abounds with more reguline Parts than the *Sulphur impurum & auratum*: Whence alſo one is always heavier, conſequently ſtronger alſo in Operation, than the other.

93. In precipitating the golden Sulphurs it remains to mention, that to procure a mild and light Sort, the Lixivium of the Hepar of Antimony need only be ſet to ſtand a Month, and the ponderous *Sulphur impurum* (as what otherwiſe comes to be blended with the golden Sulphur of the firſt Precipitation) firſt ſeparates of itſelf; but the light Sulphur, remaining behind in the Lixivium, directly upon the firſt Precipitation falls down entirely; ſo as immediately to yield a mild *Sulphur auratum*, without a ſecond, third, or a fourth uncertain Precipitation.

94. Upon rubbing and beating in a Mortar, and then digeſting with rectified Spirit of Wine

the Hepar, whilſt almoſt of a Glow, prepared with Alcali, or Nitre and Tartar, you procure that called the *Tinctura Antimonii tartariſata*; which to diſtinguiſh from others I call *Hepatica*, as it cannot be prepared otherwiſe than by Means of a Hepar. But rectified Spirit of Wine extracts a Tincture from no other Hepar, than what is doſed with Alcali; for Inſtance, from no *Regulus Medicinalis.*

95. The above Tincture conſiſts of aqueous, oily, alcaline, and ſulphureous Parts: The aqueous and oily are in the Spirit of Wine; the alcaline appear from the Effervefcence, upon pouring in an Aid; and the ſulphureous, from the fetid Smell.

96. The Geneſis of this Tincture is as follows: The dry alcaline Salt, rendered cauſtic by the Fire, and holding Sulphur, faſtens both on the aqueous and oily Portion, accompanying, and at the ſame Time ſomewhat looſened, of the Spirit of Wine. From this Combination there ariſes a ſaponaceous *Mixt*, now ſoluble in Spirit of Wine, and imparting both Strength and Colour to it.

97. But that the Colour of this Tincture is owing to the oily Parts of the Spirit of Wine appears. *Firſt*, From the enſuing of a highly ſaturated Tincture, upon employing for the Extraction an oily Spirit of Wine. *Secondly*, From ſuch a Tincture, when not happening to be hit on, being helped out with a little of a diſtilled Oil.

98. Upon concentrating ſuch a Tincture of Antimony, and precipitating it with Spirit of Vitriol, you procure, after Evaporation and Edulcoration, a ſoluble Sulphur of Antimony.

99. There may alſo thus be prepared a peculiar Sort of a fixed, red, diaphoretic Sulphur: Namely, ſeveral Pounds of Antimony in Flux and Glow are gradually poured into a Pail full of Spring-water; and to guard againſt any Accident from its Squirting, the Pail to be covered up with a Beer-veſſel, without any under Bottom, and the Matter poured in thro' a Hole in the upper Bottom: And when 10 Pounds are in, the Veſſel to be removed, and the red Sulphur floating on the Water, collected with a Ladle; the Antimony found at Bottom may be uſed for a ſecond Operation. This Sulphur, as it is called, taken in the Quantity of 10 Grains, is an innocent Thing. I take it to be a Concrete, emulating the *Regulus Medicinalis*; where the antimonial Body, ſtanding expoſed to the Action of the Fire, is by the cold Water, and the ſaline Particles to be found therein (for more of this Sulphur is procured, if the Water be previouſly impregnated with common Salt) in Part put ſuddenly out of its Mixtion, the ſulphureous expelled, and ſomething of their inflammable Matter at the ſame Time taken away. Alike eaſy and ſpeedy Union of the *Phlogiſton* with the ſaline Acid is perceivable from the bright Burning of Coals, upon throwing common Salt upon them.

100. When 5 Loths of Antimony, 4 of common Salt, and 1 of Salt of Tartar are mixed, melted, and caſt in a Cone, you have 19 Drachms of ſooty *Scoriæ*, and 15 of a dead opake Maſs called *Regulus Antimonii Medicinalis.*

101. The common Salt contributes here nothing in particular towards this Production, as without it the Regulus is procurable; only that no *Scoriæ* are ſeparated, and the Regulus ſhews externally glittering like Steel. From 5 Loths of Antimony, and 1 of Salt of Tartar, there are procured 5 Loths of a like Regulus, which in rubbing ſhews ſomewhat of a lighter Red than the preceding.

102. The firſt Inventors had unadviſedly called this Production a *Regulus*, though in Reality nothing but a Species of a Liver of Antimony; which on Account of the ſmall Quantity of Alcali mixed in amongſt it, relents not in the Air like the common Sort. It might with more Propriety be called an unſoluble *Hepar Antimonii diaphoreticum.*

103. Others prepare this Regulus with 8 Parts of Antimony, and 1 of Nitre. The Foundation of all theſe *Reguli* is, that only a certain ſmall Quantity of Alcali comes to be mixed in with the antimonial Body in the Fire: And if the Nitre, under Fulmination, loſe not its *Phlogiſton*, conſequently become firſt alcaliſed, no *Regulus Medicinalis* can be procured. This laſt Species of Regulus is almoſt black in the Rubbing, and inſtead of the Eighth it might be ſecurely prepared with the ſixth Part of Nitre.

104. I above deſignedly ſaid, that only a certain ſmall Quantity of Alcali was required for preparing the *Regulus Medicinalis*. For, upon melting, for Inſtance, the Antimony with a third of Alcali, the Maſs poured out, upon rubbing, ſhews of an Orange not a Red; nay, upon pouring Vinegar thereon, emits Bubbles, and ſomething of a Stench, and proves conſiderably draſtic.

105. Thus a genuine *Regulus Medicinalis* muſt neither give in the Air, nor undergo any Alteration from the Affuſion of an Acid; alſo in rubbing, it muſt not ſhew of a Yellow or Cinnamon, but of a Red or Purple Colour.

106. When this Regulus is by the ſecond Method carefully prepared in a Glaſs with the fifth Part of Salt of Tartar, there is procured a Maſs perfectly reſembling that Species of Silver-ore, called *red-goldiſh*, alſo ſhewing much milder in rubbing than when prepared in the Crucible.

107. Others again convey ſucceſſively upon 6 or 8 Loths of flowing Antimony 1 of Nitre, always covering up and pouring out directly. This Regulus is tinged with Rain-bow Colours on the Surface, whence it poſſibly may have come to be called *Magneſia opalina*. From 8 Loths of Antimony and 1 of Nitre, are procured 7 Loths and 3 Drachms of Regulus without *Scoriæ*.

108. In this Operation the Nitre forces off a Part of the inflammable Earth out of the Antimony, both out of its Sulphur and Regu-

lus: And the Nitre, being at the ſame Time alcaliſed, is by the ſulphureous Acid changed to a middle or neutral Salt, which again takes up ſome of the reguline *Phlogiſton:* And thus the calcined Regulus is, with the little Sulphur that is generated, mixed with the whole Maſs, and thus conſtitutes our Regulus. But nothing beſides Antimony, and calcined Regulus, is of the Eſſence of the *Reguli Medicinales*; whence it may be alſo prepared without Alcali, namely, with Antimony and its Glaſs. See below other Methods of preparing the *Regulus Medicinalis.*

109. Among the *Reguli Medicinales*, I alſo rank *Hartman's Crocus Antimonii*, which is thus prepared; namely, mixing Antimony, Nitre, and common Salt, of each 3 Loths, nimbly throw them into a glowing Crucible, where they produce neither Detonation nor much Fume; on the contrary, only boil in a heaving Manner; when ſettled to Reſt, pour them out into a Cone: And you procure 2 Loths and a Drachm of hard Regulus, glittering like Steel, and 4 Loths and 3 Drachms and a Half of dark-grey ſaline *Scoriæ*. Thus Regulus, after rubbing, is of a light Coffee-Colour; but that prepared with an Eighth of Nitre, of a quite dark Purple.

110. This *Crocus* is in like Manner only an unſoluble Liver of Antimony. But it is obſervable about it: *Firſt*, That the Nitre makes not, as uſual, a due Detonation with the Antimony. *Secondly*, That notwithſtanding, the

Mixture yields a Matter reſembling the *Regulus Medicinalis*, conſequently a good Deal of the Sulphur remaining ſtill behind in the antimonial Maſs, though, in the Proportion of the Antimony, treated with equal Parts of Nitre. The Reaſon of this I take to be, that the common Salt in ſome Meaſure impedes and moderates the Accenſion of the Sulphur with the Nitre, in Regard it imbibes and deſtroys ſome of its inflammable Parts, conſequently is in Part with-held, that the draſtic common yellow *Crocus Rulandi* (which is otherwiſe prepared of equal Parts of Antimony and Nitre) cannot be procured. The common Salt does here certainly contribute ſomething to the Production of this *Crocus*, as it is called, and can by no Means be left out in this Proceſs; there being a very great Odds, when Antimony is treated with Nitre and Salt, and when with Alcali and Salt, as in the common *Regulus Medicinalis*. The Solution of the ſaline *Scoriæ* of this *Crocus* is not in the leaſt altered by the Affuſion of Vinegar; to ſhew, that the alcaline Part of the Nitre is mixed throughout the entire antimonial Maſs.

111. The elder *Lemery* * teaches alſo how to prepare a *Regulus Medicinalis*, which he calls a Liver of Antimony, with equal Parts of Nitre, Antimony, and Sal Ammoniac: It is, however, an uncertain Production, as the Nitre is ſometimes more, ſometimes leſs alcaliſed both by the Sulphur and Sal Ammoniac; alſo

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* Anat. Antim. P. 542.

as it cannot at all Times be equally hit on, becauſe of the ſtrong Fuming of the Species, and their thus varied Proportion: Whence alſo it comes to differ both in Colour and Effect. I, for my Part, could never procure it one and the ſame, though I always employed an equal Proportion of Species: For, ſometimes it was of a light-red, again, a dark-red; ſometimes 12 Grains of it would give a few Stools; at others, a like Sort in the ſame Doſe would not work at all. As to the reſt, this *Regulus Medicinalis*, when rubbed, agrees moſtly in Colour with the above *Crocus* of *Hartman*.

112. A ſure and good *Regulus Medicinalis* may be alſo prepared with 4 Parts of Antimony, and one of the *Arcanum duplicatum*: In what Manner this vitriolic middle Salt produces the *Regulus Medicinalis*, has been ſhewn above; namely, it actually replaces an alcaline Salt, in Regard ſuch middle Salt is alcaliſed by the Acceſſion of the *Phlogiſton*, and conſtitutes a Hepar with the Sulphur both from the ſeceding vitriol Acid and the *Phlogiſton* of the Regulus; by which Means more Sulphur is added to the Body of the Antimony, and on the contrary, the Regulus deprived of ſomething of its inflammable Principle.

113. This leads me on to another Truth; namely, to prepare a *Regulus Medicinalis* with equal Parts of crude Antimony and its Glaſs. And it ſeemed to be all one, whether I calcined a Part of the Regulus in the Antimony, or mixed the Antimony with a calcined Regulus,

gulus, ſuch as its Glaſs is: What confirms this Method is the *Regulus Medicinalis* being only a calcined and ſimple Regulus, mixed with crude Antimony.

114. A no leſs curious and ſure *Regulus Medicinalis* is procured with 4 Parts of Antimony and one of the Scum of the *Caroline* Waters. The Mixture is ſucceſſively melted (as long as it throws up any Scum) and when all is at reſt, poured out. When rubbed, it is of a light-red, like the common Regulus: But if only a fifth Part of Scum be employed, it is of a dark Purple-red. This Regulus may, beſides its known Virtue, be of good Service in cachectic, hypochondriac, and convulſive Caſes, becauſe of the tender martial Particles lodged in this Scum.

115. Upon mixing 3 Parts and a Half of Antimony with the like Quantity of *Venice* Soap, melting and caſting them in a Cone, there ſettle, quite underneath, 40 Grains of common ſimple Regulus, and a Top, 6 Drachms and a Half of a dead *Scoria*, not unlike the *Regulus Medicinalis*; which when rubbed appears of a dark Purple-red, almoſt like the *Regulus Medicinalis*, prepared with an eighth Part of Nitre.

116. Among the *Reguli Medicinales* might alſo be ranked that Preparation, conſiſting of 2 Parts of Antimony, and one of *brown Stone*, or Mangane
ſe. Theſe two are melted together in the Glaſs, and boiling pretty well together, there remains behind at laſt a dark,

dead Maſs, adhering firmly to the Glaſs; which Maſs being rubbed ſhews of a Red-yellow. Its medicinal Effect remains to be examined; though doubtleſs a Kin to that prepared with the above Bath-Scum.

117. The common *Regulus Medicinalis* is ſafe taken internally, and highly commended for its reſolving and diaphoretic Virtue in all Diſorders of the Lympha, and in malignant Caſes, in the Doſe of 6 to 12 Grains. It may poſſibly alſo be of Service, with a ſtill better and eaſier Effect, in the Form of Lozenges, in arthritic, paralytic, and leprous Diſorders, inſtead of crude Antimony, as was already mentioned above; but this is to be left to further Experience.

118. Upon mixing Antimony and cryſtalliſed Nitre, of each 4 Loths, and after Detonation in the glowing Crucible, holding them for Half an Hour in a ſtrong Fire; if at length you take out the tough Maſs, you have about 3 Loths and 1 Drachm of a yellowiſh, glaſſy Matter, which being well rubbed, and edulcorated, exhibits what is called the *Crocus Rulandi*.

119. This glaſſy Maſs cannot ſo eaſily be caſt in a Cone, much leſs has it any *Scoriæ*, as *Wedelius* * ſuppoſes. The Reaſon why the Matter in the Crucible is ſo hard to flux is partly owing to the almoſt entire Deſtruction of the Regulus and Sulphur, by the ſucceſſive Detonation; partly, to the ſtubborn middle

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* Comp. Chem. p. 143.

Salt, ariſing at the ſame Time from the alcaline Part of the Nitre and the ſulphureous Acid, and mixed in with the Maſs.

120. The more vehement the Ignition of the Mixture in the Crucible is, and the more ſtrongly it is fluxed, the more of an impure Sulphur does its Lixivium let fall, and of a darker Yellow does then the edulcorated *Crocus* prove.

121. But this edulcorated *Crocus* is nothing but an Antimony, which is almoſt entirely diveſted of its Sulphur by Means of the Nitre; but the Regulus, moſtly of its *Phlogiſton*; and conſequently nothing but a vitreſcible reguline Earth, for the moſt Part deprived of its *Phlogiſton*.

122. The Production is thus accounted for: Amidſt the igneous Motion and Detonation of the Antimony with the Nitre, the inflammable Principle both of the Sulphur and Regulus is almoſt quite diſſipated, the Acid of the Sulphur remaining moſtly behind, and forming with the alcaliſed Nitre a middle or neutral Salt. This mixes itſelf in the Fire among the calcined vitreſcent Part of the Regulus, to which Maſs there is added a little of the Hepar, ariſing from the Sulphur and nitrous Acid. This hepatic and middle ſaline Subſtance takes into itſelf the hot Water poured to it, the vitreſcent inſipid Earth of the Regulus remaining behind in a yellow Form, and affording the *Crocus*.

123. The nitrous Acid, changed to a middle Salt, manifeſts itſelf diſtinctly, upon the Evaporation and Cryſtalliſation of the Lixivium; as then alſo, on the ſame Account, the unedulcorated *Crocus* gives not in the Air. But the little Hepar, mixed in at firſt with the Maſs, appears partly from the Lixivium's ſtaining Silver, partly from its depoſiting an impure Sulphur, and upon the Affuſion of an Acid, letting fall ſomewhat of a golden Sulphur.

124. On Account of this little Hepar mixed in, ſome of which, under a ſlight Edulcoration, often remains behind in the *Crocus*, this *Crocus* proves more violent than if well edulcorated; and in Regard of this Circumſtance, the emetic Wine, prepared from it, differs in Colour, and Effect. For, from theſe hepatic Parts remaining behind, the Wine, digeſted with the *Crocus*, acquires ſometimes a red Tincture. From this hepatic Subſtance it is, that the Liquor remaining after Cryſtalliſation turns quite yellow, when, by Means of the Hepar of Antimony (§. 38.) the Tartar Emetic is prepared; which happens not, when the Hepar or *Crocus* is accurately edulcorated.

125. As *Rulandus* has no where plainly communicated his *Crocus*, various Opinions have ariſen about it. The Generality hold the Preparation mentioned above (§. 118.) to be the genuine; others ſuppoſe the *Crocus Rulandi* to be a *Regulus Medicinalis*; others again, a Glaſs of Antimony, &c. But I ſhould

almoſt think, theſe different Opinions might be reconciled, ſhould we take the above Hepar, prepared by Accenſion, to be the true *Crocus Rulandi*. For, *Firſt*, It is made of equal Parts of Nitre and Antimony, as the other is generally held to be. *Secondly*, It is no common Hepar, as was ſhewn above, but a Species of *Regulus Medicinalis*; in Regard it has in its Mixture both reguline and hepatic, that is, antimonial and alcaline Parts, whence alſo it is of an eaſy Flux in the Fire. *Thirdly*, As it reſembles a Glaſs of Antimony in Hardneſs, Luſtre, and in the Breaking, nay, in Colour too, after being rubbed. *Fourthly*, As the Wine, digeſted therewith, proves one of the beſt emetic Wines. *Fifthly*, As this hepatic *Crocus* communicates alſo an emetic Virtue to pure Water, which *Rulandus* affirms. Doubtleſs, this otherwiſe experienced Perſon did not fundamentally know, or would not declare the Difference between *Crocus* and Hepar, elſe he would not call this Concrete a *Crocus*, as in ſome other Places he ſeems to call it *Stimmi*.

126. When the *Crocus Rulandi* prepared by ſucceſſive Detonation is at laſt by Force of the Fire brought to flux, after Rubbing and Edulcoration it appears of a beautiful Saffron Colour. But, if after Detonation it be only briſkly ignited and edulcorated, it acquires a loam-yellow Colour.

127. As many Authors cry out on the violent draſtic Virtue of the *Crocus Rulandi*, I

muſt believe, they either ſpeak not diſtinctly enough, or not from Experience. Doubtleſs, they are miſled by ſome Speculation or other, that capital Corrupter of numerous Truths! Namely, that this *Crocus* muſt therefore be very violent, as with ſo ſmall a Quantity thereof ſo much emetic Tartar and Wine may be prepared. From a like Prejudice, *Mynſichtus* * holds his artificial Tartar Emetic to be much more corrected than the *Crocus*, from which he prepares it. But this Speculation is far from being juſt, and runs counter to Experience; ſince the Tartar Emetic, in an equal Doſe, operates much more ſtrongly than the *Crocus*, from which it is prepared; which *Stiſſer* † alone ſeems to have obſerved. Nay, the Hepar, prepared by Accenſion, may with uncommon Advantage be given in a few Grains, in intermitting and continual Fevers; not to mention, when it is edulcorated. *Quercetanus* gave almoſt a Pound of the like *Crocus* in the *French* Plague, with deſired Succeſs ‡.

128. From ſuch *Croci* prepared with Nitre and well edulcorated, may Emetics be made in the propereſt Manner; as the Tartar Emetic, the *Sapa vomitoria*, the emetic Wines and emetic Tinctures: Yet the three laſt are more properly prepared from the above unedulcorated Hepar (§. 38.) but the firſt, from a well edulcorated *Crocus Rulandi*.

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* Arm. Chem. P. 14.

† Lab. Chem. Spec. II. C. 6.

‡ V. Freytag. de Peſte.

129. If 2 Loths of common, well edulcorated *Crocus Rulandi*, with 4 Loths of Cryſtals of Tartar and a Pint of boiling River-water, be well boiled for Half an Hour, and ſtrained hot, the precipitating Cryſtals ſoon yield a good Tartar Emetic; which given from 7 to 10 Grains, produces the deſired Effect: Five Grains are too few. But if the *Crocus* be only ſuperficially edulcorated, and ſomething hepatic remain therein; it is true, the Tartar Emetic proves ſtronger, but neither duly cryſtalline, nor dry. From this Ground it is, *Wedelius* juſtly holds for naught the Tartar Emetic prepared with the *Scoriæ* of the ſimple Regulus *. In this Caſe at leaſt the Doſe of the Tartar Emetic is more uncertain; and it is but reaſonable, that this Emetic be always prepared in the ſame Manner, and with the ſame *Crocus*, and we conſequently come to obſerve both a certain Doſe and a certain Effect. Above all, ſuch *Croci* ſhould be well edulcorated, that the Tartar may cauſe no Precipitation in the Boiling, which, it is known, all Acids do in hepatic Lotions. I after this found the Tartar Emetic operate ſtronger, when boiled with an equal Weight of *Crocus*.

130. That from a well edulcorated *Crocus Rulandi* an emetic or abſterſive Virtue may be extracted with pure Water is quite incredible; in Regard that, under the previous Edulcoration itſelf, the ſaline and hepatic Parts are waſhed out. *Wedelius* † is of Opinion, contrary

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* Pharmac. P. 116. † Ibid. P. 117.

to *Keſler*, that a ſimple Water may extract a Virtue from a *Crocus Metallorum*, and aſſigns the two following Reaſons: *Firſt*, As the Tartar makes with the *Crocus* the beſt Emetic, namely, the Tartar Emetic. *Secondly*, As a good *Crocus* differs not much from the Glaſs, but that from both *Rulandus* had extracted an emetic Water. But the firſt Reaſon falls to the Ground, as it is the Tartar, with its Acid, and which holds of all Acids, and not the Water, that performs the Extraction. The ſecond Reaſon is a bare Suppoſition; as neither *Rulandus*, nor any other for him, ever extracted any emetic Virtue with pure Water from the Glaſs of Antimony; as little as the ſaid *Rulandus* ever prepared his *Aqua benedicta* with Water from an edulcorated *Crocus* of Antimony.

131. But the Caſe alters, when the *Crocus* is not duly edulcorated, or if the Hepar, prepared by Accenſion, be employed for it; for, from both theſe, the Water extracts both ſomething hepatic and emetic too.

132. *Rulandus* * alſo aſcribes to his *Crocus* a ſeptic Virtue; a Thing very credible, in Regard the purging *Aurum fulminans* poſſeſſes too the like Virtue: For this Intention the Hepar prepared by Accenſion might be fitter ſtill; nay, on Account of this Circumſtance, be the rather deemed the genuine *Crocus Rulandi*.

133. I muſt here mention a Circumſtance, obſerved by few Authors; namely, that *Rheniſh* Wine digeſted with a well edulcorated

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* Cent. IV. Cur. X.

Crocus Rulandi will keep for Years together, out of the Cellar; whereas in half-filled Bottles in the Cellar, it is very apt to turn finewy. How *Lemery* * came to obſerve the contrary to this, I know not. This Obſervation has its good Uſe, as one may not only conſtantly have at Hand an emetic Wine ready prepared, but after once diſcovering the Doſe, expect a certain Effect from it.

134. As I digeſted 2 Drachms of this edulcorated *Crocus* with 60 Loths of new *Hungarian* Wine for eight Days, 6 Loths of it cauſed from 4 to 6 ſlight Vomitings: And 2 Coffee-diſhes of this ſame Wine gave with good Effect a few Pukes and Stools to a Child a Year and Half old, afflicted with catarrhous and febrile Symptoms.

135. I once detonated Antimony and Nitre, of each 4 Loths, ſucceſſively, and committed them to Crucibles, ſet the one over and in the other, where they flowed in a Quarter of an Hour like Water, and run all through the upper into the undermoſt Crucible, out of which they were at laſt poured. This unedulcorated *Crocus* weighed 4 Loths. Yet it held ſomething hepatic; in Regard its ſtrained Lixivium let fall, upon the Affuſion of Spirit of Vitriol, without Stench, an Orange-yellow *Sulphur-auratum:* Nay, Spirit of Sal-ammoniac itſelf gave the firſt Lixivium ſome Alteration.

136. It is otherwiſe obſervable that the Lixivium of the ordinary *Crocus Rulandi*, in Time,

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* Anat. Antim. P. 508.

turns quite clear like Water, and yet holds in it the *Sulphur auratum.* Whereas the Lixivium of a Hepar of Antimony prepared with Nitre by Accenſion, or with pure Alcali, partly lets fall ſome Sulphur directly, partly all the Sulphur in a few Months after, ſo as not to be any further alterable by any Acid. The firſt Lixivium may with Advantage be uſed for cleanſing Ulcers, and in leprous Caſes.

To the above ſeveral Methods of preparing the *Regulus Medicinalis,* may be added the four following; in Regard they give an Inſight into the Nature of this Concrete, after firſt premiſing a general *Rationale* of this Production. And firſt, when the *Regulus Medicinalis* is prepared with the fifth Part of Salt of Tartar; amidſt the igneous Motion of the Species mixed together, the Alcali lays hold on a Part of the Sulphur, at length combines with its Acid, and forms a middle Salt; but the inflammable and volatile Part of the Sulphur, being ſet free, goes off in the Fire; at the ſame Time that the Acid of the Sulphur, which is in the middle Salt, lays hold on ſome of the *Phlogiſton* of the Regulus, and together therewith becomes a new Sulphur; which, with the Regulus, deprived in Part of its *Phlogiſton,* conſequently calcined, and brought to a vitreſcible State, is mixed in with the whole Maſs, in ſuch a Manner as to exhibit the *Regulus Medicinalis.*

On this very Bottom reſts the ſecond Method, where the *Regulus Medicinalis* is prepared with the ſixth or eighth Part of Nitre.

For when the Nitre (after the Diſſipation of its own and the *Phlogiſton* of the Sulphur in Detonation) is alcaliſed, and conſequently changed by the Acid of the Sulphur to a middle Salt, there is in the Manner abovementioned a new *Regulus Medicinalis* produced.

Thus the Eſſence and Form of the *Regulus Medicinalis* reſts here, *viz.* that the Regulus in the Antimony is in Part deprived of its *Phlogiſton*, and the ſame ſeparated too from the Body of the Antimony. Now this the Alcali performs in the two abovementioned Methods; not indeed as an Alcali, but as it faſtens on the Sulphur, whereby its inflammable Part is ſet looſe, forced off, and conſequently ſeparated from the entire Body of the Antimony.

That in the common Preparation of the *Regulus Medicinalis*, the Regulus in the Antimony is in ſome Meaſure calcined, was firſt obſerved about 35 Years ago by *Hoffman* *: But the Manner, wherein it happens, we hope has been ſufficiently ſhewn above.

Thus it follows from what was ſaid above, that the *Regulus Medicinalis* might even be prepared without Salts; as there is nothing more requiſite for it than a Calcination of the Regulus, which is in the Antimony; namely, that a Part of the phlogiſtic Principle be forced off from the Mixtion of this Mineral: Seeing the *Regulus Medicinalis* is nothing but a crude Antimony, which is mixed up with equal Parts of the vitreſcible Earth of the Regulus: Conſequently it comes to the ſame Thing, whether I add to the Antimony the calcined Regulus, or whether I calcine the Regulus in the Antimony. This Theory I verify by the following Methods of preparing the *Regulus Medicinalis.*

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* Trias Diſſert. P. 43.

The *firſt* is, by melting crude Antimony with the fifth Part of a vitriolic middle Salt (whether it be *Tartarus vitriolatus*, *Arcanum duplicatum*, or *Epſom* Salt) which yields a good and ſure *Regulus Medicinalis.* From 5 Drachms of Antimony, and 1 of *Arcanum duplicatum*, I procured 5 Drachms and 13 Grains of Regulus; but I melted the Mixture in a Glaſs; which with Care may be done without Danger of its flying. The *ſecond* Method of preparing our Regulus is, by melting the crude Antimony with equal Parts of its Glaſs. Here it is to be obſerved, that no other than an equal Proportion holds in this Caſe; for if more than half Antimony be taken, the rubbed Maſs remains black; but if leſs than half, it becomes on the Surface Rainbow coloured; but being rubbed, manifeſts a Yellowneſs, not a Redneſs: But a ſure *Regulus Medicinalis* muſt, when rubbed, be always reddiſh. The *third* Method is by uniting, as mentioned above, the crude Antimony, with the *Crocus Rulandi* inſtead of the Glaſs. The *fourth* Method is by melting, in a Glaſs *per ſe*, the *Sulphur auratum.* *Peterman* *, it is true, is of Opinion, that hereby the priſtine crude Antimony is regenerated; but the Redneſs of the

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* Chem. P. 53.

Production, upon Rubbing, ſhews the contrary. Thus the Eſſence of the *Regulus Medicinalis* lies in this, that a Part of the *Phlogiſton* in the Regulus in the Antimony is deducted; a Part, I ſay, for with too much Nitre, no *Regulus Medicinalis* is procured, as both the Regulus and the Sulphur are deprived of the phlogiſtic Principle. But there muſt always be ſomething of the Sulphur, conſequently alſo of the whole Antimony be retained, by Virtue of the above-given Definition, in the Geneſis of our *Regulus Medicinalis.*

Too much Alcali alſo reduces the Antimony to a draſtic Hepar, which gives in the Air, and not to a *Regulus Medicinalis:* In Regard that both the Regulus and Sulphur loſe too much of the phlogiſtic Principle, whereby the Antimony is overcalcined, a certain Proportion of the conſtituent Parts of our *Reguli* being requiſite; as about 1 of Sulphur, 1 of Regulus, and 2 of the vitreſcent Earth of the Regulus.

And here there are two Ways of accounting for this: For, when our Regulus is prepared by Means of the alcali Salt, the inflammable Earth lodged in the Regulus and Sulphur is ſubject to a two-fold Fate. For *Firſt*, it is expelled out of the Sulphur; and *Secondly*, ſeparated indeed from the Regulus, though ſtill retained. The former happens, in Regard the Alcali faſtens on the Acid of the Sulphur, whereupon its phlogiſtic Part flies off; but the latter, in Regard the Sulphur-acid, taken up by the Alcali, takes to itſelf the phlogiſtic Earth out of the Regulus; and the Sulphur, which is thereby regenerated, together with the Regulus, in Part calcined before-hand, comes to be mixed in with the whole Maſs. And in this Manner, I ſuppoſe it is, that the Alcali calcines the Regulus in the Antimony.

But if the *Regulus Medicinalis* be prepared by Means of a vitriolic middle Salt; in that Caſe neither the Deſtruction of the Sulphur, nor the Geneſis of the middle Salt, is neceſſary; for, in the common Preparation of the *Regulus Medicinalis*, both were only requiſite for the Production of ſuch a middle Salt: But here the Sulphur-acid, extant in ſuch Salt, immediately faſtens on the phlogiſtic Part of the Regulus; upon which, both its calcined Part and the regenerated Sulphur are thereby mixt in with the remaining Antimony, and the *Regulus Medicinalis* generated.

From this Principle may now ſeveral Preparations of theſe Reguli be diſcovered, as I myſelf am poſſeſſed of a Method of making them without Salts and *Calces* of Antimony. From which it appears, that a fundamental Inſight into Chymical Operations may always pave the Way for diſcovering more practical Truths.

137. Upon reverberating powdered Antimony ſo long, and letting it fume with conſtant ſtirring it, a grey Aſh called *Aſh of Antimony*, or *incinerated Antimony*, remains behind. Near two Parts of a light grey Aſh are procured from three Parts of Antimony, and thus a third Part only evaporates.

138. The Antimony may alſo be mixed with common Salt, and thus reverberated: In this Manner it not only clots not, but the Calx is procured in a much ſhorter Time, after Edulcoration.

139. In this Operation, the Acid of the Salt lays hold on the *Phlogiſton*, both of the Sulphur and the Regulus, both which go off together. And hence happens the Separation of the ſulphureous and reguline Parts (as being what is intended in the Incineration) in a much quicker Manner.

140. *Grunling* * ſuppoſes this antimonial Aſh to be the *Terra Sancta* of *Rulandus*. But this can never be, as *Rulandus* orders to extract with bare Water an Emetic and Purgative out of his *Terra Sancta*, and give it from 10 to 16 Loths the Doſe †. It is more probable, his *Crocus Stimmi* and *Terra Sancta* are all ſynonymous Terms, as appears partly from the Preparations with, and partly the Effects of ſuch Maſſes.

141. The abovementioned antimonial Aſh is only the vitreſcent earthy Part of the Regulus; in Regard that, under the Reverberation, not only the Sulphur of the Antimony, but alſo the phlogiſtic Part of the Regulus (as from which this laſt has its metallic Flux) is forced off; conſequently, nothing more than the fixed Part of the Regulus remaining behind: Yet it is poſſible, that under the ſucceſſive Exhalation of the *Phlogiſton*, a Separation of the A-

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* Florileg. Chem. P. 83.

† Rul. Cur. emp. C. III. P. 197.

cid of the Sulphur may proceed, and leave ſome of its Earth behind.

142. A like grey Calx of the Regulus is alſo procured in the humid Way, upon digeſting the Regulus for ſome Time with Oil of Vitriol, this Acid gradually taking up the *Phlogiſton* of the Regulus, which goes off in the Fire, leaving behind the vitreſcent Part in Form of a grey Earth.

143. *Boerhaave* * holds incinerated Antimony to be a highly virulent Emetic; whereas *Hoffman* † aſſures us, it may be adminiſtred without any Apprehenſion of the leaſt violent Operation. And this laſt Opinion appears to be the more probable; as the Acid of the Sulphur, ſet free in Part, in the Act of Reverberation, is capable of correcting the remaining fixed Part of the Regulus, of which we have made ſome Mention above.

144. Upon mixing ſuch antimonial Aſh with an equal Quantity of crude Antimony, and melting them in a Glaſs, we procured a Species almoſt of a *Regulus Medicinalis.* It is a dead, ſluggiſh Maſs, which being rubbed ſhews of a reddiſh dark-grey.

145. Upon melting incinerated Antimony with an equal Weight of Alcali, beating it warm, and digeſting with rectified Spirit of Wine, you alſo procure a Tincture of Antimony, moſtly approaching to the *Tinctura Tartariſata.* For, from the middle Salt in the Pot-aſh, and from the reſiduous *Phlogiſton* in the

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* El. Chem. II. P. 507.

† Obſerv. Phyſ. Chem. P. 273.

Aſh, ſome Sulphur is regenerated, from which and the Alcali ſome Hepar is produced; conſequently, by Means of the Spirit of Wine ſomething ſaponaceous is the Baſis of the Tincture. Nay, a Coal accidentally falling in, or ſtill remaining in the Alcali, often produces the Hepar.

146. By Means of ſuch antimonial Aſh may both a Tartar Emetic and a Wine be prepared.

147. Upon digeſting this Aſh with Citron Juice, inſpiſſating the Extract; and *laſtly*, extracting with Spirit of Wine, we procure a genuine antimonial Tincture; namely, one poſſeſſing genuine reguline Parts, though the Colour be owing chiefly to the Citron Juice. This Tincture, when duly concentrated, has been found of good Service in ſcorbutic, ſcabious, ulcerous, and arthritic Caſes, given every Day from 10 to 15 Drops in common Drink; and in ſuch a Doſe it ſeldom cauſes any *Nauſea* *.

148. But if you melt the above antimonial Aſh *per ſe*, in a well covered Crucible on a briſk Fire, you have a beautiful hyacinthine Glaſs of Antimony.

149. Some throw in crude Antimony, or Flowers of Sulphur, in Flux; whereby a beautiful red Glaſs is obtained, but not ſo pure as the firſt yellow Sort.

150. The Glaſs of Antimony is only a Regulus, ſtripped of its *Phlogiſton*; namely, it is its vitreſcent Earth, which by the Action of the

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* Nat. Cur. Ann. 17. Obſ. 216.

Fire is reduced to a real Glaſs. Hence ſome of the Regulus becomes reduced by the accidental Dropping in of a Coal, in the Melting; ſince by this the *Phlogiſton* is again refunded to the Regulus.

151. The elder Phyſicians ſcrupled not Giving the Glaſs of Antimony in Subſtance. Dr. *Kerner* * obſerves, that in the Plague of 1662 and 1663 in *Bohemia*, many Perſons were ſaved by this Means; and that an Hypochondriac was happily reſtored by it. Dr. *Freytag* † affirms as much. But there is no Reaſon for an Imitation, as we have both corrected antimonial Evacuants; and chiefly, as a ſpecial Attention will be neceſſary to be had to the Cauſe and Species of the Diſtemper and the Subject.

152. Many Authors aſſure us, that a ſimple Water digeſted with the powdered Glaſs had gained an emetic Virtue. But the Deception reſts partly on Authority; eſpecially, as *Rulandus* orders his *Crocus*, which ſome eſteem a Glaſs, to be extracted with Water; partly, as we argue from the *Crocus hepaticus* to the Glaſs; partly, as ſufficient Care was not uſed in the Experiment. Let any one only digeſt a powdered Glaſs of Antimony, long and briſkly with Water, and ſtrain it through a doubled white Filtring-paper, or infuſe a whole Piece of the Glaſs with boiling Water, and it will ſtill remain a ſimple Water and Effete. I ſo long made the Trial, till I found, the falſe Obſervation was owing to ſubtile Particles of the Bo-

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* Tetras Chem. Tr. Sect. IV. de Ant.

† Tract. de Peſte.

dy of the Glaſs, muddying the infuſed Water and cauſing the Vomiting.

153. Upon calcining Glaſs of Antimony with equal Parts of good Salt-petre, we ſoon procure a beautiful white, *diophoretic Calx.*

154. On the contrary, Salt of Tartar does not correct the Glaſs ſo well; the Reaſon of which appears below. For, upon mixing and melting it with 2 Parts of Salt of Tartar, it only turns to a yellow alcaline Stone, almoſt reſembling the Amber *Scoriæ* of the *Regulus Stellatus.* With this, as with the *Regulus Cauſticus*, a *Tinctura Antimonii acris*, or a ſharp Tincture of Antimony, may be made with Spirit of Wine.

155. From the Lixivium of this yellow Stone there precipitates with Spirit of Vitriol a *Materia perlata*; to ſhew, that the Alcali has corrected a Part of the Glaſs, and diſſolved ſome reguline Parts.

156. But the edulcorated cauſtic Maſs gives a pale-yellow Powder, not unlike *Muncken*'s *Rammonneur.* But as an alterant, it is too violent, and as a Vomit, it is too gentle.

157. For my Part I hold *Muncken*'s *Tinctura Solaris*, or *Reguli Cauſtici*, to have miſled moſt People; as if his *Rammonneur* were the elixated Reſiduum of ſuch Tincture, which yet has neither the yellow Colour, nor that ſtrong Effect, which the Author aſcribes to his Powder.

158. We ſee that Alcali's alſo in ſome Meaſure are capable of correcting the draſtic Vir-

tue of the reguline-vitreous Part of the Antimony; as appears from the Glaſs of Antimony calcined by Means of the Salt of Tartar; which even given to 10 Grains is attended with no bad Conſequences. Dr. *Brandan Meybom* *, againſt Experience, maintains the contrary; pretending that Alcali's heighten Vomits.

159. From the Glaſs of Antimony beat ſmall and boiled with an equal Weight of Cream of Tartar, ſome People alſo prepare the Tartar Emetic. It is true, by this Method we always procure hard Cryſtals: Yet I prefer the Tartar, prepared with a well edulcorated *Crocus Rulandi*; both as the *Crocus* is already pretty well corrected, and as the Acid of the Tartar can the better act on a Body, previouſly opened.

160. The Fume of Antimony, flowing and ſtrongly ſmoaking on the Fire, being catched in ſubliming Veſſels, gives the common uſual Flowers of Antimony.

161. Alſo the Antimony, mixed with Sand, gives, by Sublimation, yellow Flowers.

162. Such Flowers are a diſcontinued or diſjoined Antimony, conſiſting of reguline and ſulphureous Parts; they are moſtly Emetic; eſpecially the lower Sort, as being heavier and participating more of the Regulus: Their Effect is never conſtant, on Account of the unequal Separation and Reunion of the two abovementioned Parts: Whence their Uſe in Phyſic might entirely be ſpared.

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* Diſſert. de Vomit. Uſu, &c. P. 25.

163. But if we ſublime Antimony with Sal ammoniac, we have, after Edulcoration of the upper red Flowers, the *Tinctura ſicca Antimonii Grammanni.*

164. In this Sublimation, the double ſaline Particles of the Sal ammoniac ſtill more divide the Mixtion of the Antimony: Theſe Flowers, however, have, for the abovementioned Reaſons, no certain Effect; ſince, by the Volatiliſation of the antimonial Parts, their draſtic Virtue is heightened rather than leſſened; eſpecially when the reguline Parts prevail in the Production. Whereas it proves the milder, the more the ſulphureous Parts predominate therein. For the reſt, we refer the Benefit and Uſe procureable from ſuch Flowers to a more accurate Preparation and a more heedful Experience.

165. We procure alſo from the Regulus alone, by Means of the Acceſs of the Air, and a few Encheireſes, long beautiful cryſtalline Flowers. *Duncan Bornettus* * teaches how to reverberate in a cloſe Glaſs the white Flowers to Redneſs, and afterwards to extract the Tincture with Wine-vinegar.

166. When 12 Loths of Antimony, 7 and a Half of Tartar, and 4 and a Half of powdered Nitre are mixed, detonated, briſkly melted and caſt in a Cone; we procure 2 Loths and 3 Drachms and a Half of ſimple Regulus of Antimony; and 9 Loths 2 Drachms and a Half of brown *Scoriæ*. This Regulus is therefore cal-

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* Tyroc. Chem. P. 264.

led *Simple*, as being prepared without the Addition of any Metal.

167. If the Maſs, before pouring it out, be made to run or flow pretty briſkly, the Regulus has the very firſt Time a Star a Top.

168. This Regulus is generally further purged from the few hepatic *Scoriæ* ſtill adhering to it, by once melting it briſkly with half its Quantity of Nitre; when it acquires in the Cone, under the yellow *Scoriæ*, a ſtill more beautiful Star, and comes to be called *Regulus Antimonii Stellatus.*

169. The Star ariſes from the flakey, radiated Structure of the Regulus; which, when its Parts, boiling as it were, ſtrike againſt all the Sides of the Cone, under the highly fluxile *Scoriæ*, ſufficiently covering it, it thus comes to form itſelf a Top, and as it were, to ſhoot.

170. We thus account for the Production of the Regulus: As not only the Tartar, but the Nitre alſo becomes alcaliſed in the Fire, they at length faſten on the Antimony, and reduce moſt of it to a Liver of Antimony; ſo that but a ſmall Portion of the Regulus remains metallic, ſeparates and falls down: But herein lies the Advantage, that more Tartar than Nitre is uſed for the Preparation; for, the Nitre calcines the Regulus; namely, diveſts it of its *Phlogiſton*, and therewith alſo of its metallic Fluor; whereas the Tartar comes, before its Alcaliſation, to be highly coaly, thereby refunding the Regulus with its *Phlogiſton*: Whence, ſo far as we know, the Regulus can-

not be ſeparated, either with Tartar alone, or Nitre alone; as from Antimony and Tartar a Hepar is procured; but from Antimony and Nitre, either a *Regulus Medicinalis*, or *Crocus Rulandi*, or a diaphoretic Antimony, according to the different Proportions of the Nitre: And thus both the Tartar and Nitre are neceſſary; the latter, to kindle, burn, and conſume the Sulphur; but the former, to refund the Regulus, calcined by the Nitre, with its phlogiſtic Portion, and again reſtore it to its metallic State.

171. It is worth obſerving, that the Regulus riſes or heaves much in cloſe Veſſels, without loſing its *Phlogiſton*; whereas being long reverberated in Powder, in the open Air, it lets go its *Phlogiſton*, turns to an Aſh, and in a ſtronger Fire to a Glaſs *; to ſhew, that both for the Separation, and Seceſſion of the *Phlogiſton*, the Acceſs of the Air is neceſſary; as alſo that the Admixtion of the inflammable Principle is capable of volatiliſing a Body tolerably fixed.

172. The abovementioned firſt brown *Scoriæ* are a genuine Liver of Antimony; which being rubbed, almoſt glowing hot in a Mortar, and digeſted with rectified Spirit of Wine, give, under Digeſtion, the known *Tinctura Antimonii Tartariſata*: And unleſs theſe *Scoriæ* are duly warm in the Spirit of Wine, no Tincture is procured, yet the Buſineſs may be helped out with ſome diſtilled Oil.

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* Stahl. Obſerv. Chem. P. 148.

173. But upon ſtamping ſmall the above Amber *Scoriæ* of the *Regulus Stellatus*, ſtill almoſt in their Glow, and digeſting them with rectified Spirit of Wine, we alſo obtain a very good acrid Tincture of Antimony.

174. If for the Extraction we take an oleous Spirit of Wine, the Tincture becomes the redder. But the red Colour only takes with the Ignorant, who imagine it to ariſe from the pretended golden Sulphur; the ſerviceable Effect of ſuch Tinctures reſting only on their ſubtile, ſaline, and ſaponaceous Parts; by Means of which they poſſeſs a reſolving, attenuating, and ſtimulating Virtue.

175. The Amber *Scoriæ*, being rubbed and edulcorated well, give a light-yellow Powder, formerly called *Pulvis Triſmegiſticus*, and cried up for its extraordinary Virtue. But it is only a reguline Earth caſtrated by the Nitre: Some alſo hold it to be *Muncken*'s *Rammonneur*. But I repeat the Judgment I have already paſſed on it above; namely, that as an Alterant, it is not ſufficiently corrected; and as an Evacuant, it is too mild, conſequently all its Motions are in vain.

176. After a Detonation of the above brown *Scoriæ* of Antimony with 2 Parts of Nitre, and Edulcoration of the Reſiduum, we alſo procure a diaphoretic Antimony. To ſhew, there is ſtill much Regulus in ſuch *Scoriæ*, Dr. *Lange* * ſuppoſes the Sulphur of Antimony to be fixed to ſuch a Calx. But neither

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* Oper. I. P. 652.

the genuine ſulphureous Parts, nor thoſe called the metallic-ſulphureous of the Regulus, but only its vitreſcent Parts remain behind in the Form of a Calx, the ſulphureous and inflammable Parts being deſtroyed, and only the acid Principle fixed in the alcaline Portion of the Nitre.

177. To prepare the martial Regulus of Antimony, mix well together 4 Loths of Antimony, 2 of Iron-filings, and 2 of Salt-petre, and putting them ſucceſſively into a glowing Crucible, you procure, after caſting in a Cone, under the black *Scoriæ*, almoſt half as much Regulus, as there was Antimony at firſt employed.

178. As the Sulphur readily and with Eaſe unites with the Iron, ſo this laſt proves the fitteſt of all to throw down the Regulus out of the Antimony; but to procure a better Degree of Flux, ſome Nitre is added: For, from the Addition of an Alcali, a diſſolving Hepar of Antimony is again obtained, conſequently, without a due Separation of the Regulus. This Regulus is called *Martial*, not as having any Iron in its Mixtion, but only as being prepared with Iron.

179. Upon melting duly this Regulus repeatedly with Nitre, we alſo procure a Star (like that yielded by the ſimple Regulus) called *Regulus Antimonii martialis Stellatus*.

180. If this Regulus be mixed with thrice its Quantity of Nitre, detonated, briſkly ignited,

nited, and laſtly edulcorated, the *Stomachicum Poterii* is procured.

181. This is only a reguline Calx, not differing from the diaphoretic Antimony, unleſs that a Regulus truly martial is employed, and then ſuch a Calx may exert a tonic Virtue upon the ſolid Parts.

182. When of the preceding Regulus 2 Parts with one of Tin and Copper, together with a very little crude Antimony, are melted, and the Maſs beat ſmall, and calcined with 12 Times the Quantity of Nitre, from the *Scoriæ* being warm, we procure, by Means of rectified Spirit of Wine, what is called *Tinctura Metallorum*, which in nothing differs from a *Tinctura Antimonii acris.*

183. If you melt one Part of martial Regulus with 2 Parts of *Engliſh* Tin, and ſucceſſively mixing in Powder 3 Parts of Nitre, you carefully detonate, and let ſtand for a Quarter of an Hour in ſtrong Flux; and then the whole being poured out, beat ſmall and edulcorated, the lighter, floating Part is called *Antihecticum Poterii.*

184. This Production is a two-fold Calx; namely, of the Regulus, and of the Tin; ſince the Nitre, amidſt the Detonation, ſtrips both theſe Bodies of their *Phlogiſton.* It has, from empyrical and precipitate Obſervation, acquired a greater Name than it really deſerves. No Perſon of Underſtanding can well ſuppoſe, ſuch a crude metallic Calx to be capable of opening the Bowels: At moſt it can be allowed

no more than a corroborating and incraſſating Virtue.

185. When 8 Loths of Antimony are detonated with 24 of Nitre, and briſkly melted, a fixed Maſs weighing 24 Loths and 1 Drachm remains behind; which being ſoon beat ſmall, and edulcorated with boiling Water, gives 11 Loths and Half a Drachm of a fixed, white, inſipid Powder called *diaphoretic Antimony*.

186. This Powder is only a calcined Regulus, with which much nitrous Earth is mixed in: Whence we procure a greater Quantity of white Calx, than there was Antimony at firſt employed, even though the antimonial Sulphur be deſtroyed and ſeparated in the Detonation.

187. When the Salt-petre proves to be right pure, 2 Parts of Nitre are enough to one of Antimony, in Order to correct it.

188. It is worth obſerving, that the Antimony with 8 Parts of Nitre proves a ſure *Regulus Medicinalis*; with an equal Weight, an emetic *Crocus Rulandi*; and with 3 Parts of Nitre, a diaphoretic Medicine; all which only depends on a greater or leſs Separation of the inflammable and ſulphureous Parts of the Antimony.

189. But in what Manner the Nitre in Subſtance, and alſo its Acid, caſtrates Antimony, we ſhall mention below.

190. It is probable, that the increaſed Weight of diaphoretic Antimony is principally owing to the Earth, ſeparating from the

Nitre; to which the Lime added at firſt for promoting the Cryſtalliſation appears to contribute the moſt.

191 This fixed, white antimonial Powder is an attempering, gentle Sudorific in acute and hot Diſtempers, given to 20 Grains Weight, alſo mixed with other convenient Things. *Baſil Valentine* * needleſsly deſcribes it at great Length, and gives a greater Character of it than Experience ſeems to favour.

192. *Boerhaave* †, without Foundation or Proof, ſuppoſes diaphoretic Antimony to be a ſluggiſh, noxious Calx, without any active Principle at all; though he immediately adds, that it acuates the Virtue of Purgatives; which yet cannot well happen, without an active Principal. But an inſipid Earth may, notwithſtanding, be highly efficacious, as we obſerve in the Glaſs of Antimony and *Mercurius Vitæ.* Beſides, in diaphoretic Antimony the chief Principle of the Regulus is ſtill extant.

193. The Lixivium, which in the Edulcoration of diaphoretic Antimony, is poured off and ſtrained, comes by Evaporation and Cryſtalliſation to give a mixt Salt called *Nitrum antimoniatum.*

194. This Salt is a Mixt, and differs much, according as the Quantity of the Nitre is double or triple the Antimony; but is in Part, by the Addition of the Acid of Sulphur, a neutral Salt; in Part, remains an unaltered, ge-

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* Triumph. W. P. 398.

† Elem. Chem. II. 517

genuine Nitre; and in Part, ſtill holds diſſolved ſome reguline Parts.

195. *L. Juncke* * ſuppoſes this Nitre to be burnt to an Alcali by the Sulphur of the Antimony. But he was one who had no fundamental Conception of the Sulphur. For, it is a different Thing, when the Nitre is detonated with Sulphur, and a different ſtill, when with Coal-duſt. He needed only have poured ſome Oil of Vitriol to ſuch Nitre, to have ſoon ſmelt its Nature.

196. If the above Lixivium of the diaphoretic Antimony be not evaporated, but precipitated with diſtilled Vinegar, or which is ſtill better, according to *Krugerus*, with the Acid of Vitriol, there falls down a white Powder called *Magiſterium Antimonii*, or the *Materia perlata*.

197. This Powder is only a ſubtile, reguline Calx. *Hoffman* † imagines, there is amongſt it much of the Earth, ariſing from the Nitre and the Acid of Vitriol. *Boerhaave* ‡, without any Foundation, calls it a fixed Sulphur of Antimony. But he muſt needs have had a very ſtrange Notion of Sulphur; ſince in this Magiſtery there is as little Sulphur or *Phlogiſton*, as in Mountain-cryſtal. He alſo holds a metallic Sulphur to be in the Iron and Regulus ‖. But with what Probability can a Principle, perfectly recoverable by a bare vegetable Coal, be called *Metallic?*

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* Chem. Exper. P. 408.   † Obſ. Phyſ. Chem. P. 282.
‡ El. Chem. II. P. 518.   ‖ Ibid. P. 513.

198. When we mix the above ſimple Regulus with 3 Parts of Nitre, and after Detonation, edulcorate; the edulcorated white Powder is called *Ceruſſa Antimonii.*

199. This Powder is a reguline Calx, differing little or nothing from diaphoretic Antimony. For, it is all one, whether I expel by Nitre the Sulphur and reguline *Phlogiſton* out of the Antimony; or whether I ſtrip the Regulus above of its inflammable Part; ſince in both Caſes the calcined Regulus muſt needs remain behind.

200. Upon mixing the above martial Regulus with an equal Quantity of Nitre, and cementing it for ſome Time in a briſk Fire, we procure a yellowiſh, ſaline, earthy *Magma* called *Nitrum cauſticum.*

201. Here the *Phlogiſton* of the Regulus and Nitre come to take Fire together; whence the more fixed Part of the Regulus, together with the alcaliſed Part of the Nitre, remains behind.

202. This *Nitrum cauſticum* gives, by Digeſtion with rectified Spirit of Wine, the beſt *Tinctura Antimonii acris.*

203. There is no Doubt, but a freſh made *Tinctura Antimonii acris* holds alſo reguline Parts, the Spirit of Wine eaſily taking them up, as diſſolved in the Alcali; and they together with ſaline Parts actually ſettle on the Sides of the Glaſs: But they cannot impart much Virtue to the Tincture, as in Part they

ſoon ſeparate out of it, and in Part, what remain behind are very inconſiderable.

204. Or inſtead of the *Nitrum cauſticum*, 5 Loths of Nitre may be conveyed on 6 of flowing Regulus, and be ſtrongly ignited together: And the Nitre imbibes and calcines 3 Loths of the Regulus. The calcarious Earth gives again with Spirit of Wine a *Tinctura Antimonii acris.*

205. When the Reſiduum of this Tincture is well edulcorated, there remains behind a good *Bezoardicum Minerale*, or *Antimonium diaphoreticum.*

206. Upon pouring cold Water, upon the alcaliſed Nitre, ſtill mixed with the reguline Earth, after Cooling, ſo violent an Ebullition and Heat are produced, as that cauſed by unſlacked Lime: But in the Water the Maſs turns tough, as a Dough of Pills.

207. The Water ſtrained and poured from it, lets fall, upon pouring to it an Acid, a *Materia perlata.*

208. With this Lixivium may incontinently a laſting Black be painted or writ on a green Cere-cloth. The Reaſon is, that the ſharp Alcali lays hold on, and alters the Verdegris therein.

209. Dr. *Hagedorn* * mentions, that Dr. *Michaelis* held an Extract made with the Amber *Scoriæ* of the Regulus, or with the *Nitrum cauſticum*, to be a Succedaneum for the *Aqua benedicta Rulandi.* But though it may be an ef-

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* Secret. Spag. Ruland. P. 26.

ficacious Medicine in Obſtructions and in reſolving Mucoſities, yet not ſo, as an Emetic.

210. When pure Iron and Antimony, of each 8 Parts, are combined in the Fire, and the Maſs is, after Beating ſmall, once more melted with thrice the Quantity of Nitre, and after Boiling and Standing, poured out, a liver-coloured Maſs is procured; which, being beat ſmall and edulcorated, and its lighter Part waſhed away, yields the *Crocus Martis Antimoniatus aperitivus* *; it is alſo called *Bezoardicum martiale flavum, & Antimonium martiale cachecticum* †.

211. This *Crocus* is only an antimonial and martial Calx; which ariſes from theſe Bodies being diveſted of their inflammable Part by Means of the Nitre.

212. The latter Maſs muſt therefore be detonated with three Parts of Nitre (as a ſmall Portion of it proves inſufficient) both to correct the additional Regulus and deſtroy the Sulphur of the Antimony.

213. This ſubtile *Crocus* may be uſed in all Caſes wherein Martials are of Service; as in Hæmorrhages, an Atrophy, hypochondriac Diſorders, exceſſive Vomitings, an Atony of the Bowels, and in intermitting Fevers. The Doſe is from 3 to 6 Grains.

214. When an equal Quantity of Nitre and Antimony is mixed and ſucceſſively detonated in a tubulated Retort, an acid Spirit goes over into the Water in the Receiver, which after

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* Ludov. Pharm. P. 330.

† Kœnig. Regn. Min. P. 38.

Rectification is called *Clyſſus Antimonii ſimplex.* But if directly at firſt you put to it an equal Weight of Sulphur, the rectified Water, that goes over, is called *Clyſſus Antimonii compoſitus.*

215. This acid Spirit conſiſts of the Acid of the Nitre and Sulphur, and therefore is a mixed Acid, namely, a vitriolic, nitrous Liquor.

216. When diaphoretic Antimony is prepared in a glowing tubulated Retort, this *Clyſſus* is alſo accidentally procured: A few Drops of it, in a proper Vehicle, are of Service in febrile Heats, the Dropſy, great Thirſt, in the Diſeaſes of the Meſentery, the Worms, and in Loſs of Appetite.

217. Upon mixing 8 Loths of Antimony, with 16 of Mercury ſublimate, and diſtilling according to Art, we procure 9 Loths of an Oil, which, from its thick Conſiſtence, is called *Butter of Antimony:* And if at laſt we give a ſtrong Degree of Fire, about 14 Loths of a red Sublimate, called *Cinnabar of Antimony*, ſettle in the Neck of the Retort.

218. Here the concentrated Acid of common Salt, which is in the Mercury ſublimate, diſſolves the reguline Part of the Antimony, which it carries over along with it in the Form of an Oil. And thus the Butter of Antimony is only a Regulus volatiliſed and diſſolved in the Acid of Salt: At the ſame Time the Sulphur, ſet free from its Regulus, no leſs faſtens on the Mercury, looſened from the Salt, and

ſublimes it along with itſelf in the Form of a Cinnabar.

219. The Butter conſiſts of about 9 Parts of the Acid of common Salt, and 7 of the reguline Earth.

220. Under the diſſolving Virtue of Mercury ſublimate, it is to be obſerved, that from the ſaline Acid being concentrated therein, it alſo diſſolves ſome Bodies, left untouched by the common Spirit of Salt, eſpecially when having other Parts in its Mixtion. When, for Inſtance, 91 Grains of the *red-goldiſh* Ore are mixed and diſtilled with 120 Grains of Sublimate, 140 Grains of a fluxed Maſs remain behind in the Glaſs: And thus 75 Grains of the Acid of Salt come to unite with the Silver, and a little Iron. This Experiment comes accidentally to manifeſt common Sulphur, as one of the Principles of the Ore; for, by Combination, a genuine Cinnabar ſublimes; the Ore affording the Sulphur, and the Sublimate, the Mercury.

221. But to return to the Butter of Antimony: A Butter may alſo be diſtilled from Antimony, common Salt, and Oil of Vitriol; in Regard the Acid, ſet free from the common Salt by Means of the Oil of Vitriol, faſtens on, diſſolves and carries along with itſelf, the reguline Part in the Antimony.

222. *Sennertus* * gives out, that the Butter of Antimony conſiſts of 4 conſtituent Parts; namely, the Acids of Vitriol and common Salt,

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* Parac. ad Inſt. Text. 32.

and alſo conſiſts of Mercury and Antimony. Whence appears, he neither knew the Principles of the Sublimate, nor the Manner, as above, of preparing a Butter of Antimony without Mercury ſublimate. Hence he alſo makes a Mercury to be in *Mercurius Vitæ.*

223. *Etmuller* commends Butter of Antimony from 3 to 4 Drops in Quartans; and ſuppoſes it to work only downwards.

224. The Butter, applied externally with Caution, with Certainty removes ſoft Warts.

225. Upon rectifying the above Butter of Antimony, and pouring 8 Times the Quantity of Water to it, a white Powder falls to the Bottom; which being edulcorated, is called *Mercurius Vitæ*, or the *Powder of Algeroth.* Eight Parts of Butter give about 3 and a Half of this Powder.

226. Dr. *Freytag* * greatly miſtakes in imagining this antimonial Calx to partake very little of Antimony: And he takes *Crollius* to Taſk for ſuppoſing the *Mercurius Vitæ* to be of the Eſſence of Antimony.

227. But this *Mercurius Vitæ* is only a Regulus, corroded and disjoined by the Acid of common Salt: Whence it may be reduced back again to its former reguline State with Coal-duſt and fixed Nitre.

228. *Mercurius Vitæ*, when well edulcorated, vitrifies *per ſe* in a Glaſs Veſſel, turning to a yellow-reddiſh Glaſs. But ignited along with *Lunæ cornua* in a Glaſs Veſſel, both of

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* Autor. Med. P. 606.

them become highly ſtubborn and flow not, though each of them apart be fluxible in the Fire. This I aſcribe to the ſaline Acid going out of the *Lunæ cornua* to the reguline Earth, as on what the Fluxility of the *Luna* depended. On the contrary, Bodies come often to run together in the Fire, each of which apart is highly unfluxile; as calcined Alum and the *Arcanum duplicatum*, according to *Pott*'s * Diſcovery. We alſo learn from the Memoirs of the Royal Academy of Sciences †, that, by the Burning-glaſs, Flint-ſtones and Quick-lime are made to run together in the Sun.

229. Many uſe a well edulcorated and repeatedly ignited *Mercurius Vitæ* with good Succeſs, inſtead of a common Vomit, from 3 to 4 Grains the Doſe mixed with Sugar.

230. Dr. *Stahl* ‡ is of Opinion, the *Mercurius Vitæ* proves milder in its Operation, if edulcorated with boiling Water, and boiled.

231. Upon abſtracting Spirit of Nitre from the *Mercurius Vitæ*, the edulcorated Powder comes to loſe all its draſtic Virtue, and is like Bezoar Mineral: And the very ſame Corrections happen, when detonated with two Parts of Nitre, and edulcorated.

232. Dr. *Grunling* pretends, that a *Mercurius Vitæ*, no longer Vomiting, is procured from the Butter, by Means of a Precipitation with Salt of Tartar and a ſucceeding Edulcoration. But Experience contradicts this; for it

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* V. Tom. V. Miſc. Berol. P. 94.

† Hiſt. de l'Acad. de Scienc. l'Ann. 1699. P. 114.

‡ Mat Med. P. 114.

is ſtill highly emetic, unleſs the Maſs, previous to Edulcoration, be well ignited, and then edulcorated; but the Author makes no Mention of this. But then it is only a Calx, reſembling Diaphoretic Antimony.

233. Upon precipitating with the *Spiritus Vinoſus Salis Ammoniaci*, edulcorating, drying, and igniting in a glaſs Body, the Butter of Antimony; lower down, ſome white, but higher up, greyiſh Flowers ſublime; but at the Bottom the *Mercurius Vitæ* remains in the Form of a yellowiſh, tranſparent Glaſs, melted faſt to the glaſs Body.

234. This yellow Maſs is only the glaſſy Part of the Regulus; namely, a *Mercurius Vitæ* deprived of the Acid of Salt intimately mixed in with it, by the Spirit of Sal Ammoniac: From both theſe ſaline Matters, a Sal Ammoniac, as is known, is produced; which in the Fire carries up along with it ſome reguline Particles, and conſtitutes the Flowers.

235. It remains to examine, Whether this *Mercurius Vitæ*, thus fuſed, operates more gently internally than the common, as it has in good Part loſt the ſaline Acid that was mixed in with it?

236. Upon precipitating Butter of Antimony with a Solution of Biſmuth, edulcorating and ſubliming them together, a ſilver-coloured, talky Sublimate is procured; which otherwiſe ariſes not either from the *Mercurius Vitæ*, or the Magiſtery of Biſmuth, though each of them be ſublimed apart.

237. The acid ſaline Water, poured off, ſtrained, and rectified in preparing the Butter of Antimony, was by the elder Chymiſts called *Spiritus Vitrioli Philoſophicus*, the Philoſophical Spirit of Vitriol *.

238. This Liquor is only a diluted Spirit of Salt: In this, however, it differs; namely, that it diſſolves a Sort of Flints, which otherwiſe the common Acid of Salt cannot do.

239. Upon mixing ſucceſſively in a Retort 12 Loths of good Spirit of Nitre, with 4 of Butter of Antimony, a ſtrong Efferveſcence and Precipitation ariſe, with Heat and red Fumes. When this *Mixt* diſtils by a Retort, and the Reſidue is ignited and edulcorated, about 10 Drachms of a white Powder, called *Bezoar Mineral*, are procured.

240. In this Proceſs the Spirit of Nitre faſtens on the reguline Earth, lodged in the Acid of Salt, and being a ſtronger Acid expels the weaker. Amidſt this Action, the *Phlogiſton* of the nitrous Acid is violently agitated, whence the Heat and, uſual red Fumes. But the reguline Parts, thus ſet free from their former *Nexus*, fall down, and in the ſtrong Abſtraction of both the Acids, become at length fully fixed and calcined. But why the *Aqua Regis*, ariſing from both Acids, ſhould a-new not diſſolve the reguline Earth, as otherwiſe it is known capable of laying hold on the Regulus in the Antimony, is wholly owing to the Abſence and Diſunion of the inflammable Prin-

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* Kœnig's Sel. Rem. e Tripl. Regn. P. 41.

ciple of the Regulus, as being generally diſſipated upon its commencing Union with the Acid of the Sublimate: But no *Aqua Regis* is wont to diſſolve a pure Calx.

241. The *Bezoar Mineral* is thus only a Regulus, calcined and fixed by the Acid of Nitre. Whence the like Production is alſo procured in a ſhorter Way, upon abſtracting from the fine powdered Regulus a Spirit of Nitre.

242. In Effect, this Production differs not much from a good diaphoretic Antimony. It is alſo given in the ſame Caſes, for promoting a gentle Diaphoreſis, from 12 to 15 Grains.

243. The *Bezoar Mineral* is alſo procured, upon mixing, then detonating and edulcorating 2 Parts of *Mercurius Vitæ*, with 5 of Nitre; but then it is, as aboveſaid, called *Ceruſs of Antimony.*

244. The above Spirit, that goes over, in preparing the *Bezoar Mineral,* is called *Bezoardic Spirit of Nitre*, and is only an *Aqua Regis*, combined of the Acid of common Salt in the Butter, and Spirit of Nitre.

245. I ſhall now conclude with accounting, in what Manner the vitriolic and nitrous Acids tame or correct the reguline Parts of the Antimony; and how, on the contrary, the ſaline Acid renders them rather deleterious.

The Matter of Fact no one doubts of; namely, that the two firſt Acids diveſt the reguline Parts of their draſtic Virtue, as being what many Experiments clearly ſhew: For Inſtance, when either the Oil of Vitriol, or

Spirit of Nitre, is abſtracted from the powdered Regulus, or from the Glaſs of Antimony, or from the *Crocus Rulandi*, or from *Mercurius Vitæ*, and the *Reſiduum* is ignited and edulcorated, a pure diaphoretic Powder is obtained. In like Manner, when the Butter of Antimony is precipitated with Oil of Vitriol, or with Spirit of Nitre, and diſtilled together, and laſtly edulcorated, alſo a diaphoretic Calx remains behind.

To account for this; I hold theſe Acids entirely to expel the *Phlogiſton* out of the reguline Parts, alſo by the Fire to fix and calcine them; conſequently entirely alter their Texture and Mixtion. I expreſly ſay, *entirely*; for, but a little of the inflammable Earth remaining behind, the Concrete is not yet quite corrected: Whence the Antimony, with equal Parts of Nitre, remains ſtill emetic; but, with 3 Parts, becomes entirely diaphoretic.

But in what Manner, and for what Reaſon, the Admixture of an inflammable Earth ſhould render and keep the fixed, glaſſy, reguline Earth deleterious, is a Queſtion of a higher Enquiry; and depending on this, namely, Whether it may be aſcribed to the mercurial Parts, flying off at the ſame Time?

But that the vitriolic and nitrous Acids in Effect diveſt the reguline Parts of their *Phlogiſton*, appears from ſeveral Experiments.

Firſt, As, in the abſtracting the Oil of Vitriol from the Regulus, a volatile ſulphureous Odour is obſerved; which clearly ſhews the

Combination of the ſeceded reguline *Phlogiſton* with the Vitriol-acid.

Secondly, As the reguline *Reſidua*, treated with ſuch Acids, are white, ſtubborn, and unfluxile. Whence again may be perceived the Abſence of the inflammable Principle, ſince the Production is again brought back to its former metallic Regulus, upon properly adding, again, the ſeparated inflammable Principle.

Thirdly, As the Calces, thus ariſing, make not the leaſt Detonation in the Fire with Nitre; there remaining nothing behind of the real *Phlogiſton*.

On this Footing nearly it is, that Nitre alſo in Subſtance corrects Antimony, or rather its reguline Portion: For it not only expels the *Phlogiſton* entirely out of the Mixtion of the Regulus, and calcines it, but alſo a Part of its own Earth is mixed in with the *Reſiduum*, as may be ſeen from the increaſed Weight of the diaphoretic Antimony. I mentioned before, that the inflammable Earth of the Regulus muſt be entirely forced off: For, if too little Nitre be taken, the Production ſtill remains yellowiſh; as for Inſtance the *Crocus Rulandi*; and ſtill holds ſome inflammable Earth, conſequently is not entirely corrected. On the contrary, when the fixed Production is entirely white and light, it is found quite caſtrated and diaphoretic, like diaphoretic Antimony, and other white antimonial Productions. Hence alſo it is, that, for the Correction of the Glaſs of Antimony, an equal Portion of Nitre nearly is ſufficient, as being thereby changed to a white diaphoretic Calx; in Regard the Nitre has no Sulphur to deſtroy, but only carry off the little *Phlogiſton* ſtill lodged therein. This is the Reaſon, that for the Correction of crude Antimony more Nitre is requiſite, than for the taming its Glaſs or Regulus.

The Acid of common Salt, on the contrary, not only corrects the reguline Parts, but renders them ſtill more deleterious; in Regard it neither fixes nor calcines them, but on the contrary wholly diſſolves, volatiliſes by Help of the Fire, and brings them over along with itſelf in Form of an Oil: And there alſo appears no entire Separation of the *Phlogiſton* to have preceded; which is perceivable both from the conſtant yellow Colour of the *Mercurius Vitæ*, and from the nidorous Vapour, ariſing upon the Combination of the Butter and the Spirit, or the Precipitation of the *Bezoar Mineral.* As to the reſt, it deſerves ſome Reflection; namely, where, in the Solutions of the ignoble Metals and the Semimetals, their inflammable Earth comes to remain; or what becomes of it? This Circumſtance is conſidered by few, as it deſerves. The incomparable *Stahl* was the firſt who obſerved the ſmall and ſudden Sulphurification, happening upon the Solution of Iron-filings with Oil of Vitriol.

In the ſame Manner almoſt do alſo the fixed alcaline Salts correct the emetic Virtue of the Regulus or Glaſs of Antimony; for Inſtance, after melting the Glaſs of Antimony with 2 Parts of Salt of Tartar and edulcorating it. For, in Regard the reguline Parts, mixed in with the Alcali, are brought into, and kept in Flux and igneous Motion, the Alcali faſtens on the glaſſy Earth thereof, disjoins, diſſolves, and calcines it, at the ſame Time that the inflammable Part, being ſet free, flies off, and the remaining edulcorated, white, and calcarious *Reſiduum* acquires, inſtead of a deleterious, a diaphoretic Virtue.

But that the fixed alcaline Salts are not only capable of calcining, but alſo of entirely diſſolving it, may be clearly ſeen, partly from the *Materia perlata* and Amber *Scoriæ* of the Regulus, and partly from the Precipitate out of the Lixivium of the Salt of Tartar with Glaſs of fuſed Antimony.

AN

APPENDIX.

THE Medicine mentioned in Page 22, may perhaps ſeem a very unlikely one, to cure the Diſtemper it is there recommended for, which ſeems to be the one that has proved ſo fatal to our Cattle; and thoſe who look upon the *Crocus Metallorum* as a harſh *Emetic*, which it is well known to be to Mankind, may likely condemn its Uſe in all malignant and peſtilential Diſeaſes, ſuch as this is among the Cattle. But, beſides others, we are aſſured by Mr. *Geoffroy*, one of the beſt Judges perhaps of theſe Matters, in two ſeveral Places of his *Materia Medica*, viz. Page 39, and 222, that this Medicine, as well as the ſtill harſher *Liver of Antimony*, proves *ſudorific* and *diaphoretic*, inſtead of *emetic*, to *Horſes* and *Quadrupeds*. If ſo, it is very likely they may be proper for the Diſeaſe our Author recommends them for; and will, it is hoped, effectually cure a Diſtemper that has hitherto baffled the Effects of all other Medicines. For it is well known, that Sudorifics are of great Service in all contagious malignant Fevers, like this; and where Antimony proves Sudorific, it promiſes to be both effectual and proper in ſuch Caſes, as it is not attended with the inflaming Qualities, the fatal Effects, of common Sudorifics. In theſe brute Creatures theſe Preparations of *Antimony* may operate perhaps in the ſame Manner, as the *diaphoretic Antimony* and *Stibium nitratum* do in Men (but more powerfully without doubt) for whom they are daily uſed in ſuch Caſes. Beſides, it is well known, how effectual *Antimony* and its ſeveral Preparations are in the Diſeaſes of moſt brute Creatures. It is eſteemed, and daily uſed, by the Farriers, as a Kind of *Panacea* for Horſes: It cures thoſe Obſtructions of the Lungs, that make them ſhort-winded, heals their Scab and cutaneous Diſeaſes, and helps very much to bring an emaciated Jade to good Plight again; which it ſeems to do by promoting the Diſcharges of the Skin, the Thing chiefly indicated in curing and preventing peſtilential Diſeaſes. Mr. *Geoffroy* tells us, the Liver of Antimony may be given to Horſes, for theſe Purpoſes, to the Quantity of two Ounces at a Time, for ſeveral Weeks together. But a ſmaller Doſe, as an Ounce, or Half an Ounce, repeated twice or thrice a Day, or oftener, as Occaſion requires, ſeems to be ſufficient for Cows, in their preſent Diſtemper; in which its Operation ſhould be forwarded by Plenty of tepid Diluents, and warm Covering.

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